

**INDEPENDENT
TRAVEL TRAINING
FOR
BLIND CHILDREN**

(R D - 1082 - S)

* A FINAL REPORT *

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- DECEMBER, 1967 -



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HOUSE FOR THE BLIND**

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This investigation was supported in part, by a demonstration
grant Number RD 1082-S, from the Vocational Rehabilitation
Administration, Department of Health, Education and Welfare,
Washington, D. C. 20201

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ACKNOWLEDGEMENTS

While this project evolved through the efforts of many dedicated men in the field of orientation and mobility, some were more personally involved in the project's implementation and continuing success. Catholic Charities is especially grateful to Donald Blasch, Director, and Stanley Suterko, Assistant Director of the Center for Orientation and Mobility of the Blind, Western Michigan University, Lawrence Blaha, Mobility Specialist at the California State College at Los Angeles, and John Malamazian, Chief, Center for Blind and Visually Impaired Veterans, Veterans' Administration Hospital, Hines, Illinois, as the initiators and consultants of the project.

Gratitude is also extended to Dr. Patricia Bledsoe, Director of the Child Mental Health Center, and Miss Angela Chemazar, Coordinator of Services for Retarded Children, both of Catholic Charities, and Dr. H. Joan Costello, Research Clinical Psychologist, Institute for Juvenile Research, Chicago, Illinois, for their excellent psychological reports, test data and assistance with parent and teacher groups.

In addition to the gratitude expressed to the staff of the Veterans' Administration Hospital, we must also recognize the contribution to this field of two outstanding men: Dr. Richard Hoover and Russell C. Williams.

Dr. Hoover, while working at the Maryland School for the Blind, became concerned about the travel aspects of blind children. Later he made an original study of independent travel with the use of the "long cane" while

working with blinded service men at the United States Army Hospital at Valley Forge, Pennsylvania. This work with blind service men formed the nucleus of the Orientation and Mobility Program at Hines.

Russell C. Williams, the first Director of the Blind Center at the Veterans' Administration Hospital, recognized the needs of a blind person and developed the rehabilitation program around these needs. He and his staff concentrated upon the development of skills within the area of communication: manual dexterity, physical conditioning, recreational activity and orientation and mobility. With the development of adequate skills and with the aid of supportive counselling, the blind person could regain an outlook and performance commensurate with his real abilities.

To list all participants and the ways in which they assisted would entail a report of considerable size. In lieu of special mention, our heartfelt thanks are extended to all who aided in the success of this project.

INTRODUCTION

Throughout its history, American education has shown consistency in its purpose to provide an education for all children, and the blind, because of the seriousness of their disability, are no exception. The philosophy inherent in the concept of special education, which caters to the exceptional child, places great value upon the individual. Appropriate attention is given to the particular needs of the handicapped child so that he, too, may achieve his maximum potential and become a functioning and contributing member of society.

However good special education has been in providing for the special needs of blind children, there has always been room for improvement. One glaring inconsistency in the educational structure was the development of a curriculum which did not meet the total needs of the child. The average blind child received an academic background, with the aid of such tools as Braille and typing, which enabled him to compete scholastically with his sighted peers. Physical and social abilities might also have been enhanced by his being included to some extent within the curriculum of the sighted children, but a primary need, that of being able to travel independently, was either ignored or was given little consideration by program directors. All the advantages aimed toward the successful integration of the blind in a sighted world were nullified by an omnipresent dependence upon others to meet their mobility needs. Prior to this grant award a systematic form of instruction to overcome this dependence is not known to have existed.

The opportunity to gain an insight into what orientation and mobility might accomplish for blind children, and how this might be incorporated into an educational setting, came about largely through the efforts of the personnel of the Center for Blind and Visually Impaired Veterans, Veterans' Administration Hospital, Hines, Illinois, a rehabilitation center since 1948 for blinded war veterans. Within a short time, due to the untiring efforts of the director, his assistants, and the orientation and mobility specialists who were demonstrating and participating in instructional sessions and workshops, the public imagination was stirred, and professional people throughout the country began to realize the feasibility of independent travel for blind children. The eventual transition to a federally-supported program for orientation and mobility for children was achieved with the start of this project, RD 1082, in August, 1962, which was the first such award granted to an agency.

Orientation and mobility has now become an essential part of the Catholic Charities' Program for the Blind, and since more teachers of Orientation and Mobility have become available, a greater number of schools throughout the country are now including independent travel techniques in their curricula. It is hoped that this demonstration project will lead to still wider recognition of the necessity of such training.

I. RATIONALE OF PROJECT

The purpose of this project was to teach blind junior and senior high school students the skills of independent travel so that they would be able to navigate the environment of home, school and neighborhood without outside help. Validated skills of orientation and mobility as taught by a qualified instructor were used. As the sphere of their travel expanded and their knowledge and ability increased, we believed that the students would achieve their potential and become better adjusted, self-reliant, employable adults.

The people associated with the project hope to make it increasingly apparent that the need for independent travel is an educational need, requiring a well-trained specialist using a defined program of instruction which is included within the regular program of education. In this way, independent travel will become a vital part of the child's ever increasing repertoire of experiences and demonstrable skills, consistent with his over-all educational growth.

A. SPECIFIC OBJECTIVES

While aware of the benefits of this project, if successful, to other directors of programs for the blind, the initiators asked the following specific questions:

1. What amount of revision will be necessary to the adult-validated skills of orientation and mobility to make them most effective for children?

2. How much and how often should orientation and mobility instruction be given to children at different grade levels?
3. What factors seem to relate to the child's ultimate success in orientation and mobility?
4. What effect will it have on his academic and social activities?
5. What effect will it have on enlarging his physical environment?
6. Will orientation and mobility enable him to better control his environment?

B. PROJECT CONSIDERATIONS

The initiators of the project generally acknowledged that the majority of educational systems were not providing orientation and mobility instruction to their students. In the instances where it was provided a relative lack of success existed which could be attributed to the employment of an unqualified instructor, infrequent or poorly planned instruction, or a combination of these factors.*

*-An unqualified instructor would be a person assigned to teach independent travel techniques who did not possess adequate preparation, experience or qualifications. At the present time instructors are being trained at the graduate level and have met the physical and medical standards required for this profession.

Infrequent instruction refers to a poorly coordinated effort on the part of the administration, instructor or student to meet a regularly assigned schedule for the achievement of continuous progress.

Poorly planned instruction refers to an unsystematic approach to the organization of individual lessons and the entire training program.

While no standard had been previously set as to frequency of instruction, the Blind Rehabilitation Center at the Veterans' Administration Hospital devoted two hours of instruction per day, five days per week to orientation and mobility instruction. This figure of ten hours per week could not be construed as standard procedure for every situation, because the nature of the Center was primarily rehabilitative rather than educational. On the other hand, the relative amount of success emanating from this type of program indicates that, at least in this case, frequency of instruction is compatible with success in orientation and mobility.

The project initiators agreed to observe the following guidelines:

1. Employment of a qualified instructor in this case meant a sighted person possessing a B.S. degree in Physical Education and four years of experience in working with the blind at the Blind Rehabilitation Center, Veterans' Administration Hospital, Hines, Illinois.
2. Frequency of instruction would generally aim toward daily lessons during the regular school week of approximately 45 to 60 minutes duration.
3. All lessons would be individualized, with the instructor giving instructions to only one student during each lesson.

4. The orientation and mobility instructor would be responsible for lessons and unit planning, but would generally follow the guidelines and principles adhered to by the Blind Rehabilitation Center.
5. An effort would be made to achieve cooperation between all participants, parents, teachers and children.

While these useful guidelines were being formulated other factors presented a more complex problem. Although Dr. Hoover's original concern was for children, the actual application of his study was accomplished with adventitiously blinded adults who had previous normal visual experience. The ultimate success of this project would then lie with the adaptability of instruction to subjects with differing factors of age, learning experiences, and recency of visual loss.

It would be the instructor's responsibility to modify his instructions and methods to those that would best fit the situation for congenitally blind children or those children who lost their functional vision early in life. (It is thought that a visual loss in a child under the age of five results in his having similar concepts to those of a congenitally blind child.) The vast majority of students who would be concerned with this project would not have had the advantage of visual perception during the formative learning years of one through sixteen as

would the veteran for whom the validity of instruction was established. Experiences which would normally relate to independent travel such as recognition of common places, things and terms may not ever have been learned by the blind child, as he may never before have felt the need to learn or do any amount of independent travel. The frame of reference would now be one of habituation rather than rehabilitation, learning rather than re-learning.

The psychologists working on the project were especially concerned about the factors which seemed to relate to the ultimate success of orientation and mobility. These factors constituted a change in the direction of the original objective which required observations to be made as to how the addition of orientation and mobility instruction might have affected a blind individual's self-concept. The importance of recognizing factors related to success in independent travel would lead to placing an earlier emphasis upon these same traits and possibly assist in the initial selection of suitable candidates for this training. There was also an interest as to whether the inclusion of an additional subject within the structured school setting would affect academic or social activities. Any significant changes over the four year period were to be reported.

The remaining two project objectives were concerned with enlarging and better controlling the child's environment. The major concern in this case would be the extent of expansion of the child's travel capabilities as well as his control over his expanding environment. Of primary importance in this regard was the extent of improvement in safety, efficiency and appearance of the various mobility techniques.

At the start of the project some of the children were severely limited in their mobility, while others could travel fairly extensively in a familiar area. Those who did travel in a familiar area had little regard for the manner in which they navigated and it is doubtful that the travel extent or procedure would improve without formal mobility training. It was assumed that most children would show improvement in both the extent of their travel and their travel procedure following mobility instruction.

C. RELATED DEMONSTRATION PROJECTS

Previous demonstrations in the area of orientation and mobility for blind children utilizing the services of a sighted, professional orientor, have consisted of only a few brief sessions, the most intensive being a maximum of three weeks exploratory experiment within a college setting one or two years prior to this project.

The most that could be concluded from this brief demonstration was that there were definite indications that the participating

students had gained a greater degree of confidence and freedom of movement, and the foundations of an improved self-concept.

At the time of this grant award in August, 1962, the Center for Orientation and Mobility of the Blind at Western Michigan University had already begun a cooperative venture with the local schools for the blind in Kalamazoo and Battle Creek, Michigan. The Western Michigan project had the purpose of training orientation and mobility teachers, and the opportunity for teaching experience was presented by the local schools under the direct supervision of a university staff member. In spite of a diversity of purpose, the two projects remained closely attuned. Three of the Catholic Charities' consultants were also administrative personnel for the university project. Ample opportunity for observation and evaluation was given to the consultants and an exchange of ideas became a part of each session. For the most part, similarities rather than differences were in evidence, and the main purpose in mentioning the Western Michigan program is to stress the successful sharing of information and ideas.

Other programs under government subsidy followed RD 1082 and as of this writing the following Vocational Rehabilitation Administration projects have responded to a report for summaries of current findings:

1. RD-1168-D "Itinerant Instruction in orientation and mobility for Blind Adolescents in Public Schools", Alameda County School Department, California,
2. RD-1228-D "Mobility Instruction for Blind Children in Public Schools", Metropolitan Society for the Blind, Detroit, Michigan,
3. RD-1406-S "A Planning Study for Orientation and Mobility Instruction in the Schools of Los Angeles County", California State College at Los Angeles,
4. RD-1784-S "Demonstration of Home and Community Support Needed to Facilitate Mobility Instruction for Blind Youth", Los Angeles State College Foundation, and the
5. Office of Education Project 32-26-000-1013 - United States Office of Education - "A Concentrated Mobility and Orientation Approach for the Improvement of Education for Partially Seeing and Blind Children in Day School Settings", Haysville School District #187, Haysville, Kansas.

Since all projects have either been directly or indirectly influenced in their approach to orientation and mobility by the Veterans' Administration Hospital at Hines, Illinois, a number of similarities exist. Some project personnel were trained as

orientation and mobility specialists at the same rehabilitation center or educational institution, giving rise to similar philosophies and methods of instruction.

Orientation and mobility lessons appeared to be grouped into major units generally dealing with (a) instructions preceding any work with the use of the "long" cane or instructions basic to all orientation and mobility, (b) beginning cane techniques, and (c) advanced cane techniques.

Another method of grouping lessons within a unit structure was to list the major environmental settings in which travel is effected. Unit I would be indoor travel, Unit II would be outdoor residential travel and Unit III would be outdoor business travel.

One project makes mention of a special unit which was devoted to training beyond the ordinary requirements of the course and was designed to meet the individual needs of each student. (This unit was reviewed and accepted as a necessary part of this project as of June 30, 1965.)

The Vocational Rehabilitation Administration projects seem to utilize both school and home settings as a training environment for their students. Some make specific mention of this while in others it is implied. The Haysville project had the instructor employed in the capacity of both an orientation and mobility specialist and a special education consultant for blind and partially seeing children.

No mention was made of instructions taking place outside the educational facility or environment.

In all situations there was a definite recognition of the importance of enlisting the cooperation of the student, parents, teachers (both classroom and special education teachers) and administrators for maximum results. One project mentioned the peer group as another group to add to the above. Some projects conducted meetings for specific groups, others conducted in-service training or workshops. All attempted in some way to inform, educate or assist in the formation of positive attitudes by parents, teachers and students towards the project objectives.

A diversity of information was reported on the frequency of instruction for individual students. The number of lessons ranged from one or two lessons per month of an undetermined duration to five lessons per week (at a rate of one per day of approximately 40 to 60 minutes duration). A recommendation made by the project reporting the highest frequency of instructions was that the minimum amount of instruction should be two lessons a week for continued progress to be made.

The teaching load for each orientation and mobility instructor varied from a maximum of 42 students per year (an estimate based upon dividing the total number of students served within the reporting period by the number of instructors) to a minimum of six students

during a six-month period. No recommendations were made except that the project having the lowest teaching load of six students per semester mentioned that this figure was typical for an orientation and mobility specialist. The amount of travelling time between students varied considerably, since some projects served students in several counties.

Whether all or any of the projects moved their students through the program of training on a continuous or interrupted basis was undeterminable since most projects stressed that progress was dependent upon the ability of the child, without mentioning the continuity of instruction.

No project made specific mention of the termination of instruction. A possible reason for this is that what constituted completion was not made clear. Other factors involved may have been the unavailability, at the time of this writing, of terminal students, and undefined guidelines as to the number of hours, lessons, etc., which would be considered the "average" completion time for even a small sample.

II. INCLUSION OF THE PROJECT WITHIN THE CATHOLIC CHARITIES' PROGRAM

A. SETTING

The Catholic Charities of Chicago operates its program for the visually handicapped through the Department of Vision and Hearing Services, which functions in accordance with the regular parochial

school system within the Archdiocese. While the policy of the Catholic Charities' program is to integrate the blind child completely into the existing system, it has been found necessary to make certain adjustments at the elementary school level.

Thus, the child attends the regular nursery school or kindergarten near his home, but when he has reached the approximate mental age of six, he is enrolled in one of two elementary schools located in geographically centered sections of the city. Here he goes to regular classes with seeing children and returns to a well-equipped resource room at various times during the day for lessons in Braille, reading, writing and related subjects, under the direction of a full-time, trained teacher of the blind.

The child is expected and encouraged to get to most places within the school and playground without assistance, and takes part in all school and playground activities with his seeing classmates. As he progresses through the primary and intermediate grades, the amount of time he spends in the resource room is gradually lessened as he achieves independence in his work.

After a time, usually at the end of the sixth grade though sometimes earlier, the child is ready to return to his own parish (neighborhood) school. His education is now supervised by a trained, itinerant teacher of the blind who visits the child at his school

several times a week, depending upon his need. Upon completion of his elementary education, the child is enrolled in a cooperating high school.

B. STUDENT ENROLLMENT

A total of 32 students were served as a result of this project. All participants were legally blind children ranging in age from 11 to 18. Etiology of blindness varied from one individual to the next, but the greatest single cause of blindness was retrolental fibroplasia, a condition of blindness originating soon after birth from an excess of oxygen given to incubated premature infants. Originally only junior and senior high school students were accepted, all of whom had met the criteria for enrollment on the Catholic Charities' Program for the Blind. These criteria stipulated that the child have no severe physical or mental disability other than blindness, would meet the psychological requirements of at least normal intelligence as determined by a standard intelligence test, and be considered able to perform adequately within a structured schoolroom situation.

Participants consisted of 20 boys and 12 girls. With the exception of one Negro boy, all children were Caucasian. Intelligence quotients as determined by the Wechsler Intelligence Test for Children, Verbal Scale, ranged from 57 to 148. All but one trainee used Braille as an educational tool.

C. PERSONNEL AND THEIR FUNCTION

Although the project was administered from the Catholic Charities' central office, it operated within both the special and regular parochial school setting. To ensure a successful program and the achievement of the project objectives, cooperation was necessary between the special education department and the parish and high schools serving the blind student.

1. Director

Miss Marian C. Quinn, as Director of the Department of Vision and Hearing Services, was responsible for the implementation of the project within the special education program for the blind. The purpose, objectives and various responsibilities of the project were made known through special teacher meetings. Various directives and project policies were initiated and followed through at her request, and frequent consultations were held with other staff members for the implementation of any administrative improvements.

2. Consultants

There were six consultants who periodically met with the project director and staff members to discuss and evaluate the project aims and achievements.

Three consultants were representatives from the Center for Orientation and Mobility of the Blind, a graduate program for the training of orientation and mobility specialists. These same men were formerly associated with the Center for the Blind and Visually Impaired Veterans, Veterans' Administration Hospital, Hines, Illinois. They are Donald Blasch, Director, Stanley Suterko, Assistant Director, and Lawrence Blaha, Instructor, all of the Center for Orientation and Mobility of the Blind, Western Michigan University.

Dr. Patricia Bledsoe, Director and Miss H. Joan Costello, a practicing Clinical Psychologist, from the Catholic Charities Child Mental Health Center, were engaged in the study of those objectives which most allied to their field, namely, psychological testing and observation, parent counselling and guidance, and finally an analysis of their findings (as noted within the results of Objective #3).

John Malamazian, Chief of the Hines Rehabilitation Center, provided an evaluation check on the various methods and techniques and served as a sounding board for any additional changes which might be made in the area of orientation and mobility.

3. Orientation and Mobility Instructor(s)

Originally only one orientation and mobility instructor, Robert Gockman, was employed in a full-time capacity. During the last year of operation three additional instructors were employed to give instructions to those students who could not be seen by the regular instructor. Their primary responsibilities consisted of reviewing and evaluating students who had already received training, but who were in need of a periodic check-up. Essentially their duties matched those of the full-time instructor:

- a. to instruct students in independent travel skills;
- b. to maintain schedules and daily summaries for all students participating in the project;
- c. to periodically evaluate students completing all or portions of their unit training;
- d. to serve as a resource person for other staff or project personnel, i.e., advisory or instructors for in-service training; and
- e. to serve as a liaison between students, parents, and teachers.

4. Resource and Itinerant Teachers

At the start of the project, four resource teachers staffed the four special education rooms located within

the three centers for the blind. Four itinerant teachers served students located in parish and high schools.

As teachers concerned with the over-all growth and development of their students, they were responsible not only for developing the academic skills of their students, but for promoting a greater independence in their daily activities. Participation in a one week orientation and mobility workshop provided the basis for the reinforcement of correct travel skills in the school situation.

III. GENERAL DESCRIPTION OF THE PROJECT

A pilot program was administered to a small number of children, seven in all, from approximately June, 1961, to the starting date of this project. Part-time personnel were drawn from the Hines Center for Blind and Visually Impaired Veterans. Lessons were individualized and the training environment included the student's school and neighborhood. Travel goals were often very specific and lessons infrequent. The personnel were aware of the various inadequacies of this program, but the response from parents and students was encouraging, leading to the initiation of the present project.

The orientation and mobility program operated on a twelve-month basis. It corresponded with the school year only in the starting phase. An incoming six grader would receive instructions beginning around September. He would then continue to receive instructions

throughout the year and would most likely finish his intensive training the following September. One year of training was often necessary to prepare the student adequately for the transference to his parish school at the seventh grade level.

In order to allow for the seasonal changes in the Chicago area, the starting time in September was chosen to enable the student to work in an indoor setting through the fall and winter. He advanced to an outdoor setting in the spring and summer. This allowed the student to gain a considerable amount of proficiency with the use of the cane prior to winter travel.

Instructions were given on the individualized basis of one instructor to each student. This method followed a general recommendation for maximum progress by rehabilitation facilities serving the blind. The instructor could take full advantage of individual motives and goals with this procedure and could base his instruction on the physical, mental and emotional factors affecting each student.

Each student moved at his own rate of progress. A successful completion of a lesson would advance the student to his next step in the Unit training. He was encouraged not only to accept his instructor's criticism in regard to standards, but also to develop standards of his own, in keeping with the rules of safe, efficient and acceptable travel. At various intervals the student might request to repeat all or part of a lesson simply because he thought that he could do better. He might

overrule the instructor who had been prepared to advance him with an acceptable, if not perfect score. Since he was not actively competing with anyone, the student could feel free to indulge in personal satisfaction rather than be pressured into constant advancement.

The full-time instructor maintained an average of approximately ten new students per year, most of whom would advance through Units I, II and a part of Unit III. He also maintained a schedule for advancing students with previous training which was acquired through this project, whenever the need for additional training was evidenced. In the past year of operation the part-time instructors reviewed and gave advanced instruction to all but the beginning students.

In every case the instructors traveled by car to each of the centers or homes of the individual students. This travel time was carefully scheduled in order to give instructions to the greatest number of students and travel time between clients rarely exceeded thirty minutes. A concentration of students at one center afforded a greater amount of time spent in teaching without additional expenditure of time for travel. Scheduling was done on a geographical basis to allow for maximum student load. An alternating instruction schedule was prepared for different areas whenever daily travel might exceed the limits of practicality.

In addition to the travel between the centers and individual students, the instructor also made use of auto travel to present students with various travel locales or to provide a variety of starting points

for specific travel situations. The total travel for the instructor, including travel with the student, averaged between 40 and 50 miles per working day.

Learning experiences related to travel for the blind must be both varied and meaningful: varied, to allow the individual to gain exposure and an accumulation of knowledges and skills to cope with the situations and setting with which he will come into contact, and meaningful so that the areas used in training will also serve a definite purpose.

Within this project the training environment included the practical settings of the school, neighborhood and community. In one instance it even included teaching an individual to know more about his own home. The school served as the first situation in which the student applied his new travel skills. These skills were general enough to allow them to be repeated in almost any other indoor situation. They were also specific enough to this particular setting to develop maximum safety and efficiency.

The outdoor setting surrounding the school established a further advancement of the individual's techniques and aided in the transfer of learning which would take place when the student began to apply his techniques to the new environment of the neighborhood and community.

With the gradual extension of travel there would be a time when advanced or uncommon situations would be included for additional learning experiences, such as the use of a traffic signal for proper street

crossing, accepting or refusing assistance from strangers and a number of other responses which were part of the Unit advancement plan.

One of the most interesting aspects of this project was the development of sequential lesson planning. Lesson planning was done in such a manner as to afford the student with a continually enlarging base of travel knowledges and skills.

No grades were given to students for participating on the orientation and mobility program, neither was any academic weight attached to it. A written evaluation was made by the instructor for both the parents and student as to the student's progress at the end of a four month period and again at the end of the regular school year. (This roughly corresponded with the regular school marking periods at mid-term and the end of the school year.) Later evaluations were made whenever intensive training was resumed and did not necessarily correspond with any marking period. The Unit skills for orientation and mobility were used for this purpose. (See Addendum Pgs. 129-131)

IV. PROJECT ORGANIZATION

Three distinct, but overlapping areas were covered by the program of Orientation and Mobility for the Blind: Appraisal, Education, and Evaluation.

A. APPRAISAL

The appraisal consisted of knowing the student. An assessment was made of his medical, academic and other background information in order to work with him effectively. This was accomplished

by (1) making a complete survey of his cumulative records, (2) observing the child in his natural surroundings as to his usual functioning, (3) gaining additional pertinent information relative to the orientation and mobility instruction, and (4) completing a formal testing procedure for the determination of information related to the project objectives.

B. EDUCATION

The educational area consisted of transmitting information not only to the student, but also to his parents and teachers. Individual meetings, group meetings and workshops were used to explain the purpose of the project, to explore and develop a group therapy session and to engage the parents in a workshop situation so that greater understanding might come about.

An in-service training program was arranged to dramatize the purpose of the project and make the resource and itinerant teachers more informed and critical of independent travel methods. Informal sessions between the instructor and the teacher were held whenever a specific problem arose.

However, the real impact of this program was upon the blind child and consequently the greatest amount of time and effort was spent on direct teaching procedures. Four units were used. The first three were graduated in complexity and difficulty and each depended upon the successful completion of the previous unit.

1. Techniques Used

Generally speaking the techniques utilized by the project were those currently in use at the Hines Center. They have been in use for the past twenty years and have been recognized by all organizations concerned with blind rehabilitation. The general description of these techniques encompasses techniques which are basic to all orientation and mobility (a to f) and those which involve the use of the "long" cane (g to i):

a. The Use of a Sighted Guide

There is a correct way, which has to be learned, in which the blind person may make use of another person's vision in order to be efficiently mobile. This is done by grasping the sighted person's arm just above the elbow and maintaining a pace one-half step behind the guide. The blind person reacts to his surroundings through the transmission of body movements from the guide to the blind person.

b. Familiarization

This is the process of presenting verbal and sensory information to a blind person so that he may gain a better understanding of a certain place or setting.

Frequently a sighted guide is used for descriptive purposes while the blind person is given the opportunity for controlled exploration.

c. Hand and Forearm Protection

This is a technique and a method of travel which affords adequate protection for the user in a familiar area. The hand and forearm are raised shoulder high in a horizontal position, and extended out in front of the body in such a way as to protect the head and shoulders against injury.

d. Trailing

Trailing is primarily an orientation device. The hand closest to a wall surface is kept in contact with the wall in order to establish a line of travel, to identify and locate objects and to maintain a constant orientation with the environment. Trailing can also be accomplished with surfaces or objects other than a wall. It can be and is used in conjunction with the hand and forearm protection.

e. Direction Taking

Direction taking involves the act of positioning oneself with an object or sound so that a straight

line of travel may be effected. It implies that a direct line of travel can be made from one object to another.

f. Squaring Off

Squaring off is the positioning of one's body in relation to an object or sound so that a primary orientation position may be gained and knowledgeable movement may be made from that reference point to other objects or goals, whether in a straight line or not.

g. Sensory Training

Sensory training involves a variety of techniques. It is a program designed to develop a keener sensory awareness of the environment. It is accomplished primarily through:

- 1) familiarization techniques which place considerable emphasis upon the identification of various sensory clues. (These may include clues that could be recognized by the use of residual vision, hearing, smell, balance, touch and other cutaneous stimulation.),
- 2) the use of the same sensory clues as definite landmarks to follow within an instructional travel plan, and

3) constantly encouraging each individual to notice, refer to and use the important sensory information within all travel situations.

h. The Diagonal or the Across the Body Cane Technique

In this procedure the cane is used in such a way as to afford the user adequate protection and security while travelling in a fairly familiar setting. The cane is held in a stationary position in a diagonal line across the body from the extended hand to a point approximately a fraction of an inch above the floor. It serves as a protective device by being the first to locate or come into contact with objects directly in front of the user. It is often combined with trailing.

i. The Touch Technique

The touch technique is the basic method employed to further travel in both familiar and unfamiliar surroundings. The cane is held in an extended position away from the body with the hand and grip in direct alignment with the center of the body. Cane movement is controlled by the wrist which moves the cane from side to side, approximating a low arc of body

width and touching the floor at the end of each arc. When stepping out, the lead foot gives the signal to move the cane tip in an arc to the opposite side of the body. When all of this is accomplished, the total effect is to have the cane tip touch a spot in front of the individual close to where the user's foot would alight at the following step. In this way, the user may assume, by tactual means, that it is safe to continue to travel, unless, through this same sense of touch, he has been signaled a warning that his path is obstructed or in some way altered by declines, steps or a differing surface.

j. Ascending and Descending Stairs With the "Long" Cane

After the stairs are located in the manner described above, the user investigates unfamiliar stairs by checking the height, depth and width of the top step. An adaptation of the diagonal cane technique would be used for both ascending or descending. For the descent, the cane is lowered beyond the edge of the second stair from the top. The traveler has advance notice of the floor when his cane tip touches the floor in advance of the leading foot.

Ascending stairs is accomplished by advancing the cane in the diagonal position, two steps ahead of the traveler. Advance warning of the top of the stairs comes when contact with the riser is discontinued two steps prior to the user's actual step onto the new level.

- k. Advanced Techniques With the Use of the "Long" Cane
Sidewalk travel, locating crosswalks, crossing streets, the use of traffic signs and signals, and other more complex situations require certain techniques and teaching methods that are too detailed for listing. All require adaptations of one of the above-mentioned techniques combined with a liberal travel education.

2. Systematic Instruction Through Four Units

Of the four units used, the first three were increasingly difficult and complex. The fourth unit was used as a means of reviewing the student and advancing independent travel to objectives of specific interest or need - even more complex than those in any previous unit.

a. Unit I

The first unit was divided into two sections dealing with the skills basic to all orientation and mobility,

regardless of whatever the eventual travel tool might be, and an introduction to the use of the long cane.

1. Instruction in the Skills Basic to All Orientation and Mobility

- a) The correct use of a sighted guide.
- b) Familiarization techniques.
- c) Hand and forearm protection.
- d) Trailing.
- e) Squaring off and direction taking.
- f) Training and use of compass directions.
- g) Simple route planning combined with independent travel.
- h) The incorporation of sensory training within all of the above phases.

2. Introduction to the Use of the Long Cane

- a) The diagonal (or "across the body") cane technique.
- b) The touch cane technique.
- c) Continued route planning and independent travel to specific objectives using a combination of techniques.
- d) Continued incorporation of sensory training.

The setting was indoors, generally in one of the centers for the blind.

b. Unit II

Unit II continued instructions in the use of the long cane in the residential area and has the purpose of aiding the student gain additional proficiency and awareness within these surroundings.

1. Introduction to the use of the long cane in an indoor setting.
2. Introduction to guideline travel.
3. Introduction to the rudiments of outdoor travel involving a typical residential setting, the planning of a simple travel route and the accomplishment of same.
4. Residential street crossings.
5. Route planning and independent travel over a more extensive area.
6. Appropriate familiarization techniques.
7. References to a street numbering system and the use of a tactual map for both classroom and practical experiences.
8. Continued sensory training within all of the above phases.

Normally a Blind Center's local environment was used as a training area.

c. Unit III

This Unit aimed to give the student enough practical knowledge and ability to be able to cope with the complexities of independent travel within a business setting.

Travel instruction can be divided into several parts:

1. Introduction to travel along a business street.
 2. Introduction to street crossings within a business district.
 3. Introduction to street crossings involving traffic signs or signals.
 4. Introduction to travel by means of public transportation.
 5. Familiarization with the various characteristics of a shopping district including an indoor knowledge of various business and department stores
 6. Advanced route planning and travel using a combination of the travel situations listed within this Unit.
 7. Continued sensory training as per Units I and II.
- Chicago, being a metropolitan city, has many streets that are part of a business complex. Not only is it

necessary for the blind traveler to go through these sections, he must also go to various places of business in order to meet many of his daily commitments. Travel via public transportation was another important facet of this Unit, since many students would make use of public transportation in order to travel to their cooperating high schools.

d. Unit IV

This fourth Unit consisted of a periodic review of each student who had gained sufficient travel ability to meet his particular needs and who had temporarily discontinued the intensive training schedule. The student's age, necessary objectives, maturity and ability were taken into consideration when ascertaining how far to advance him. Normally the first and second Units would be the furthest extent of any new student's travel within the first year of training. The independent travel that would be expected of him at this point would usually be confined to residential travel.

A resumption of training would come about again when all of the above-mentioned factors indicated the need for advanced training such as would be

found in Unit III. In many cases, Unit III preceded the independent travel that the student found necessary for his entrance into high school. When a student had completed all three Units, he was reviewed. In some instances there was need for special lessons involving travel to specific places which were complex enough to warrant additional training or familiarization.

C. EVALUATION

In every program where skills are taught, there must be a concern for standards. In this case, the student had an obligation to meet standards of performance that reflect safety, efficiency and a satisfactory public appearance. The full-time instructor assumed the major responsibility of evaluation, but the part-time instructors and consultants also served as additional checking personnel.

The full-time instructor had the responsibility of evaluating each lesson for every student. A poor performance would necessitate a repeat lesson. A good performance would mean progression to the next lesson of greater or at least of equal difficulty. He would also evaluate each student and his progress within the Unit structure. Intensive, frequently scheduled instructions would be halted when the student had

matched his travel ability to his travel needs or when he had reached a point of maximum training consistent with the factors of age, needs, maturity, ability and skills. In addition, the instructor established travel limitations for each student based upon prior performance and capabilities. (The actual sphere of travel would depend upon the student's proven travel ability.)

The part-time instructors served as an additional professional person for evaluative purposes by instructing the advanced students and observing their performance and by utilizing a uniform checklist for grading performance. (See Addendum P. 129-131)

Those consultants with a background of orientation and mobility also submitted written evaluations of the students they had observed during their regular visits to evaluate the program.

The psychological information secured at the beginning of the training was analyzed for the purpose of meeting the project's special objectives. The results are included within this report. (Under Obj. 4, P. 86)

V. ADVANCEMENT OF THE STUDENT THROUGH THE PROGRAM

A. ACCEPTANCE PROCEDURE

The child could be referred for training by a teacher or

a parent, but was normally accepted for training through regular administrative procedure at the time he reached the sixth grade.

The child was told of his eligibility for training by either the resource teacher or the orientation and mobility instructor. An appointment was made with the parent and the instructor discussed the child's enrollment in the program. Generally a visit was made to the home of the student so that the instructor could observe the family relationships and environment. The future roles of the parent, child and instructor, details of schedule and other essentials would be spelled out at this time.

A prerequisite for training during the project period was the consent of the parent to bring the child to the Catholic Charities Child Mental Health Center for psychological testing. There was no charge for this service. Testing was administered by a qualified psychologist and consisted of an intelligence test, sentence completion test, projective stories and observation.

The orientation and mobility instructor developed an additional information sheet to evaluate the student for his future training. The information sought related to specific orientation and mobility skills and knowledge. (See Addendum Pgs. 126-128)

B. TRAINING

Instructions began immediately following these preliminary procedures. The use of an occluder or blindfold was determined by the amount of residual vision in each case, and the long cane was introduced as a travel tool. The instructor generally tried to establish a good working relationship with the student and attempted to initiate positive thinking toward future independent travel. The scope of the program was re-emphasized and some general and specific goals were touched upon.)

1. Unit I

Within this Unit the child became acquainted with the use of a sighted guide. He was taught how to use this technique effectively and also how to instruct sighted people, such as his immediate family and friends, in the correct procedures to use. He was thoroughly familiarized with the interior setting of his school and the instructor would methodically explain, point out and otherwise increase the child's knowledge of his surroundings through familiarization techniques. Cardinal or compass directions were introduced and used in a gradual extension of travel from one focal point, usually the main entrance of school.

The student had the opportunity to expand his independent travel with the use of the hand and forearm technique, done with and without trailing. He would be taught to travel within the building and gradually enlarge his travels to include new routes and new objectives. After a period of rote memorization of the travel routes as presented by the instructor, he was encouraged to plan his own routes, using correct directional procedures, spatial orientation and sensory awareness of all important travel clues. At the end of this first part of Unit I, skills basic to all orientation and mobility, he would advance to the use of the long cane as a travel tool.

The diagonal or "across the body" cane technique was used with the same indoor setting and included trailing whenever applicable. The diagonal cane technique served to replace the former mode of travel within this setting and was the first time the cane was used as a practical travel tool. Locating, ascending and descending stairs with the use of the technique was practiced and mastered. Route planning to more advanced objectives and routes of additional complexity were continued.

An extended period of time was necessary to teach the student the fundamentals of the Touch Technique. When the student was ready, all emphasis was placed upon his gaining correct technique before resuming independent travel. When the fundamentals had been mastered, he again obtained practical travel experience within the school building.

An introduction to the Chicago Street Guide and addressing system was made whenever it could be included, either on a planned basis at various intervals within this Unit or during a time when regular travel was restricted or otherwise not indicated. A tactual map and its associated teaching aids were used for this purpose.

At the end of this indoor period the student was required to review all of the previous techniques, with the exception of the tactual map activity, and perform them to the satisfaction of the instructor before he was able to advance into Unit II.

2. Unit II

The touch technique was the primary method of independent travel from this point forward. However, the

student would first obtain a brief, general orientation to his outdoor surroundings by means of a sighted guide. The usual procedure was to begin with the main entrance to the school as the starting point and conduct the student around the block. Various landmarks, clues of travel, typical and atypical things would be pointed out. Retention of important information was checked during and after the lesson.

After a brief introduction to outdoor cane travel, the sphere of travel gradually extended from the focal point to a variety of simple travel routes encompassing the school building. Other entrances were located from the outside and put into proper perspective with the previously run interior lessons. The entire city block and its many objectives would be traversed by gradually extending the travel routes and returning to the same starting point.

Adaptations of the touch technique were taught, such as maintaining an orientation with the edge of a sidewalk while the cane touched lightly into the parkway searching for a crosswalk (following a guideline or shoreline), locating curbs and improving the sensitivity

and the effectiveness of the cane touch. Knowledge of the outdoor environment was expanded through practical exposures and progressive learning experiences. When the student had increased his independent travel within the confines of the city block in which the school was located, a larger residential situation was presented to him.

A nearby house, with its corresponding address, which became the student's imaginary home, would now be used as an advanced focal point. This presented the instructor with the opportunity to engage the student in advanced lesson planning involving at least primary knowledge of the Chicago Street System. Objectives were chosen from the neighborhood in another graduated extension of travel and returns were made to the same location at the end of each completed lesson.

Various visits were formulated in the lessons which followed, such as trips to a nearby mailbox, school, bakery, hardware store, pet shop, etc. The learning experiences were consistent with normal residential travel. The student learned to make proper street crossings, locate the directional street corners, and

simple house addresses, and otherwise plan independent lessons of increasing difficulty.

By the time the summer vacation period arrived, the average student had completed the first and second Units. In most cases the skill he now possessed would be of sufficient quality to render him capable in almost any residential travel situation. This vacation period was then used to transfer all of his prior learning into useful travel within his own neighborhood. The eventual goals would be independent travel to, from and within his parish school, daily travel to various practical objectives commensurate with those traveled to and from his imaginary home, and lastly, places of specific interest. This last-mentioned category might include places of a social nature or extra-curricular activity, a friend's home or other such places of particular interest to the student.

By adhering closely to the annual timetable, the average student was able to accomplish all or most of these things as a gradual extension of his independent travels, using his home as the focal point. The child was encour-

aged to utilize his travel skills outside the regularly scheduled lessons with the approval of his parents.

Once enrolled in his new parish school, the child might be briefly reviewed, questioned about any unforeseen needs, and given additional instructions if necessary. After this had been accomplished, the child might not be seen again until he was reviewed at the end of the six month period. This review consisted of objectively assessing his skills and knowledge by observing him as he traveled to one or more of his practical situations and recording the results on the Unit checklist.

(Addendum P. 129-131)

Obvious deficiencies would be followed up by notifying the parents and scheduling additional instructions. Short-term instructions might be arranged in some cases to increase travel ability or to meet specific needs, but ordinarily the student would not receive intensive instruction again until he was preparing to transfer to high school.

3. Unit III

In many cases the average student had already been exposed to certain phases of this Unit, but needed addi-

tional learning experiences in order to qualify for more extensive travel within a business district. The student had probably experienced travel along a busy street, but had not yet made crossings, or learned some of the more advanced methods associated with business travel. The timetable for advancing his travel might begin the Fall or Summer preceding his entrance into high school. The training setting could be either the commercial area surrounding his grade school or a similar area near his home. Instructions would eventually include the actual trip involved in travelling to and from high school, travel to practical objectives within the neighborhood, street crossings with the use of a traffic signal, the use of public transportation, soliciting and refusing assistance from fellow pedestrians, continued use of a street guide, locating unfamiliar objectives, and other experiences related to this type of travel and the amount of ability he might have. If the student had any limitations as to the extent and degree of travel both he and his parents would be made aware of this and it would be noted in his records. Again the child would be encouraged to travel as extensively as his ability allowed pending parental approval.

4. Unit IV

Unit IV, or the follow-up Unit, would be used again after the child had made the necessary adjustment to his high school situation. If the child needed corrective procedures or specific instructions to accommodate certain needs, these were given when the instructor made his regular six month check or even sooner if there was an immediate need which was relayed to the instructor. This Unit took the student through high school, after which he is no longer a participant of the Catholic Charities educational program for the blind.

VI. PROJECT METHODS

A. RESTATEMENT OF PURPOSE

The primary purpose of this project was the determination of how well orientation and mobility techniques, as practiced at an adult rehabilitation center might be able to fulfill the independent travel needs of blind, school-age children. A systematic program of imparting the knowledge and skills of orientation and mobility, using a qualified instructor, was introduced to 32 blind children from grades five through 12, within an integrated parochial school system. The majority of the students,

(20 boys and 12 girls, all legally blind) were considered to be of average or above average intelligence, and ranged in age from 10 to 16.

While 42 students altogether were served as a result of this project, only 32 can be considered valid participants. Seven students, while at least partial recipients of orientation and mobility instruction, had been connected with a pilot study and were not included in the preliminary evaluations, testing and other associated procedures from which the project results were eventually derived. Two students were transferred to other school systems, leaving insufficient data available, and one student was dropped after a short period because of poor cooperation.

The population did vary slightly from the above description by the inclusion of 9 students of below average intelligence as measured by a standard intelligence test. Three students had a handicap in addition to blindness, although these were not of an incapacitating nature. One boy possessed a moderate hearing loss, a girl was affected by cerebral palsy; one boy, who was later removed from the project, could be defined as mentally retarded. Several children had emotional problems before or during the project period that required psychological counselling.

B. STUDENT SELECTION

1. Early Selection of Students

During the first year of operation, four children who remained on the pilot program were continued into the full-time program. Later that year, five trainees without any previous training were added. The average age was 15.7 months and all had established a definite need to obtain travel instruction. The majority needed assistance in becoming more effective in their present situations, or needed to further their abilities in order to cope with their new educational facilities when transferring from an elementary school to a high school. They had been recommended for training by an itinerant teacher who was in a position to judge their needs in the educational setting.

It was assumed that older children would be the ideal subjects to work with since they seemed to express a greater need and desire to travel independently. This assumption was not tested by preliminary questionnaires or other evaluative procedures, but was rather a broad analogy made by considering the needs of a blind child as compared with those of a sighted adolescent. Even without ascertaining if the above were true, the project

director, the instructor and the consultants agreed that the best possible procedure would be to begin instruction with the older children and gradually work down toward the younger children. This method would most closely approximate the instructor's previous experience with adults and serve an immediate need by training children experiencing transfers to new schools.

2. Later Selection

After the first two years of the project, the older students had either received some training or had been bypassed in order to work with the younger students. The decision to work with the younger students at this time was favorably considered in light of the factors previously cited. The minimum requirements regarding participation in the project were simply that the child be legally blind, and either enrolled within the sixth grade or at the sixth grade age level. For the latter part, this meant that a thirteen year old boy then enrolled in the fifth grade would be eligible for training by reason of age rather than grade level. There were only three boys who qualified for training under this broad interpretation.

C. GENERAL PROCEDURE

The general procedure related to the project objectives was as follows: a program of orientation and mobility designed to meet both the general and specific travel needs of the particular age group was administered by a qualified instructor to 32 blind children enrolled on the Catholic Charities program. Lessons were standardized in content and arranged in sequence from the simplest to the most difficult. There was to be flexibility of sequence scheduling and duration of instruction, in order to provide limitation and permit exploration. Data related to project objectives were obtained from various sources:

Orientation and mobility data were gathered from:

1. Personal interviews of the participants and initial observations made by the orientation and mobility instructor.
2. Individual daily progress reports reflecting observed progress within the orientation and mobility program by the project instructor.
3. Periodic evaluations using a uniform checklist by the regular instructor and qualified consultants (See Addendum P.129-131)
4. Anecdotal material from parents, teachers, students and others.

Psychological data were gathered from standard testing procedures carried out by qualified psychologists including:

1. Weschler Test of Intelligence
2. California Test of Personality
3. Dorfman Sentence Completion Test
4. Projective Stories
5. Psychological interviews for the investigation of independent activities, chores and free time.

Academic data included the grades of each participant, which were obtained from the individual cumulative records. Social activities data were gathered from questionnaires which were filled out by the parents. (See Addendum P.126-128) At the termination of the project all data were compiled and analyzed for significant changes and comparative effects related to the project objectives.

In addition to the impact that this training would have upon the participating group of blind children, the areas of investigation were listed within the following questions which formed the main objectives of the project:

1. What amount of revision is necessary to the adult validated skills of orientation and mobility to make them most effective for children?

2. How much instruction in orientation and mobility should be given to the children at different grade levels and with what frequency?
3. What effect does it have upon his academic and social activities?
4. What factors seem to relate to the child's ultimate success in orientation and mobility?
5. What effect does it have upon enlarging his physical environment?
6. Does orientation and mobility enable him to better control his environment?

VII. PROCEDURES

A. OBJECTIVE #1 - "What amount of revision of the adult-validated orientation and mobility skills is necessary to make them most effective for children?"

1. Methods

- a. A list of orientation and mobility techniques was compiled and placed in logical sequence of difficulty and put into practice within a systematic course of instruction by the project orientation and mobility instructor.
- b. These techniques were continuously analyzed by the instructor throughout the project period for their value within this new setting.

- c. The basis for retaining any or all of the techniques was the evaluation of the instructor and the relative amount of success achieved by the participants over the entire project period.
- d. Revised techniques considered for retention within this program have been compiled as a part of this study.

2. Results

The adult-validated orientation and mobility skills, as described in detail within this report, were introduced to 32 blind students on the Catholic Charities program with the following results:

- a. The mobility skills, or those skills involving the use of a sighted guide, hand and arm protection, and the long cane as a travel tool, could be used without revision for the students involved in this project. No skill was insurmountable if sufficient time and teaching skill were brought into play.

Difficulties were present in teaching some individuals in that:

- 1) There was sometimes a lack of understanding by the student of the names of the specific

parts of the body. This in turn brought about an unawareness of the relationship between different parts of the body, and a relative inability to assume certain body positions on verbal command.

- 2) In certain cases, students needed additional time in order to master the more complicated techniques of mobility, especially the touch technique with the use of the long cane.
 - 3) While the diagonal cane technique was taught and mastered by all, a minor revision was found to be useful within a congested school situation. This cane technique was made more effective for locating stairs by allowing the cane tip to touch the floor surface in anticipation of a flight of descending stairs. This proved to be more suitable for a crowded indoor setting, because it decreased the element of tripping other students or aborting the touch technique when approaching stairs or when travelling within the school corridors.
- b. The orientation skills were greatly in need of revision:

- 1) Primary knowledge and facts related to independent travel were often lacking, incomplete, or incorrect for this group which contrasted greatly with the adventitiously blind adult group.
- 2) Knowledge and experience related to orientation procedures varied greatly from individual to individual.
- 3) Teaching techniques and materials had to be expanded and devised to fit the more elementary learning situations until the orientation skills and knowledge approximated those of the adventitiously blind adult group.

3. Implications

- a. As noted within the results, it was found that of the mobility skills used within this project only one minor revision was considered necessary. While it was obvious that there would be a variation in the amount of skill employed in the use of these mobility techniques, all participants could adequately perform these techniques without undue difficulty.

In some cases, where correct positioning of the hands and arms was essential to the technique, and the child had difficulty in assuming the position, the instructor assisted in this physical manipulation. The kinesthetic retention of these positions was recalled with greater ease if subsequent practice involved verbal explanation and minor changes in physical placement until, finally, no physical assistance was necessary.

- b. A program of physical education, based on the Presidential Physical Fitness Program was established and administered by the resource teachers. Not only did this increase the children's strength and endurance, but it facilitated orientation and mobility instruction by improving their ability to follow verbal commands and assume specific body positions. Whenever possible, the children were encouraged to participate in physical education activities within their parish schools and high schools.
- c. Additions to the existing orientation procedures were more numerous since orientation knowledge is

influenced by preconceived ideas about the environment; whether knowledge or a correct concept of the environment has been acquired and applied; and the ability to learn new concepts and to restructure faulty ones.

The Adult Blind Center at Hines has an adventitiously blind population that relies heavily on the first two factors and the program planning reflects this approach. This program, centered upon the congenitally blind child, must place a major emphasis upon the ability to learn and restructure concepts.

As the child increases his orientation knowledge and applies this to his enlarging travel situations, the program begins to approximate more closely to the situation at Hines.

Various means were employed in teaching new concepts within this project. The most basic were:

- 1) Determining the real extent of the child's orientation knowledge through an evaluative process prior to training - a questionnaire was used for this purpose. (See Addendum Pgs. 126-128)
- 2) Sequential lesson planning involving a gradual expansion of travel, with pointed explanations

and opportunities to use all sensory channels, were used to introduce first familiar and then unfamiliar settings.

- 3) Specific lessons involving new or unfamiliar concepts were included within the lesson plans. The more abstract concepts involving city topography (street patterns, the grid system), the Chicago addressing system, as well as traffic rules and regulations that apply to automobiles, public conveyances, and pedestrians, were taught with the use of such aids as tactual maps and Braille street guides. (See Addendum Pgs. 137-138)
- 4) New concepts learned with the use of these aids were reinforced and practiced within the actual settings at the appropriate times.
- 5) Various points of reference, such as the cardinal directions of north, south, east, west and appropriate terminology such as right, left, behind, front, were used in each lesson. The student was constantly involved in lesson planning and each specific travel objective was planned by him with the instructor's assistance until this became minimal in content and served only to ensure wise judgment.

B. OBJECTIVE #2 - "How much orientation and mobility instruction should be given to children at different grade levels and with what frequency?"

This particular objective deals with three factors: frequency of instruction, duration of instruction, and grade levels. It was found necessary to analyze each factor separately and then re-evaluate the factors of frequency and duration with reference to the original question.

Orientation and mobility instruction was offered at most grade levels to explore the effects of such instruction at the different grade levels. Grades five through twelve were used. The frequency of instruction was varied from two to five days per week for each student to explore an optimal rate of instruction. At the end of the project students were ranked according to their ability. They fell into four categories, which were compared with the frequency rate to see if there was a correlation between them.

Formal orientation and mobility instruction was offered continuously from the fifth to the twelfth grade level so that maximum depth of instruction might be determined for individuals and an average number of lessons obtained from the entire group. The impact of frequency and duration was then re-evaluated for the effect upon the various grade levels.

The daily progress notes, various records pertaining to grade levels, frequency and duration of instruction and the opinion of the orientation and mobility instructor were used to substantiate results.

1. Methods for Frequency

- a. The frequency of instruction was varied from two to five days per week for the 32 participating students.
- b. These 32 students were grouped into four ability rankings after completing a single standard unit of instruction (Unit 1).
- c. The four ability rankings represented an excellent group (A), a good group (B), a fair group (C), and a poor group (D).
- d. The frequency rate was then compared to the ability rankings to determine if any correlation existed.

2. Results - (Frequency)

The frequency of instructions for the entire group of 32 children averaged almost 3.5 lessons per week during the period when instructions were offered.

Frequency of Instruction-Beginning Students

5 Times Per Week	4 Times Per Week	3 Times Per Week	2 Times Per Week
8	3	16	5

The 32 participating students were ranked into four ability or success groups--excellent, (group A), good (group B), fair (group C), and poor (group D). Each group was then investigated as to the frequency of instruction to determine whether this bore any relationship to success in orientation and mobility for Unit I.

- a. Group A contained seven children having an average frequency rate of 3.75 lessons per week.
- b. Group B contained 11 children having an average frequency rate of 2.82 lessons per week.
- c. Group C contained seven children having an average frequency rate of 3.86 lessons per week.
- d. Group D contained seven children having an average frequency rate of 3.58 lessons per week.

Groups A, C, and D represented a higher frequency rate than the group average for the 32 students. Group B had a low frequency rate of 2.82. The highest frequency rate was recorded by the C group, followed by Group A, and then Group D.

Frequency of Instruction-Advanced Students

5 Times Per Week	4 Times Per Week	3 Times Per Week	2 Times Per Week	1 Time Per Week
1	3	11	17	6

Additional instructions for the same 32 students over the four year project period resulted in an average of 2.37 lessons per week during the period of time when a continuation or advanced instruction was offered. The greater number within this table is due to several students receiving additional instructions at different times and possibly with different frequency rates.

The average frequency rate for the four ability or success groups did not significantly vary from the average frequency rate of 3.44 gained from the entire group. However, Group B showed the greatest variance from the group average. Statistically, at least, it appears that this particular group was the most efficient in terms of comparing the frequency of instruction with the amount of skill achieved in Unit I. Frequency of instruction most closely approximated three lessons per week. Group C represented the least efficient group statistically. The frequency of instructions was about four lessons per week for a lower level of achievement.

3. Implications

- a. It appears that a three day per week schedule is an excellent frequency rate for those students who are capable of a good achievement level in orientation and mobility training.
- b. The students who are capable of excellent achievement may profit from more frequent instruction.
- c. The fair students may need more frequent instruction in order to maintain this particular level.
- d. The poor students might profit from more frequent instruction, but only maintained a poor achievement level at the frequency rate of $3\frac{1}{2}$ lessons per week which is the representative figure for the entire participating group.
- e. The students at the upper levels (excellent and good) generally achieve at this high level with a frequency rate of slightly more than three lessons per week.
- f. The students at the lower levels (fair to poor) achieve lower results with a frequency rate of just below four lessons per week.

4. Method Used for Duration

- a. The same ability groups that were previously

used to determine a correlation between frequency of instruction and orientation and mobility success were used in this study.

- b. Each ability grouping was investigated to discover possible correlation between the duration of instruction and relative success in orientation and mobility.
- c. Units I, II and III were used in this study.
- d. Although a plus (+) was used to designate a further advancement into the Unit, no arithmetic score was given for this advancement.

5. Results Duration of Instruction

<u>Name</u>	<u>Length of Time Instructed</u>	<u>Excellent Group</u>	
		<u>Units Completed</u>	<u>Lessons Completed</u>
1. Lynne	11 mos.	2+	89
2. Charles	8 mos.	3	85
3. Richard	10 mos.	2+	91
4. Michael	6 mos.	3	38
5. John	10 mos.	2+	83
6. Linda	4 mos.	3	36
7. Theresa	6 mos.	2+	47
<hr/>			
(55)	7.86 Avg.	(17)	2.43 Avg. (469) 67 Avg.

<u>Name</u>	<u>Length of Time Instructed</u>	<u>Good Group</u>	<u>Lessons Completed</u>
		<u>Units Completed</u>	
1. Anthony	4 mos.	1	25
2. Barbara	10 mos.	2+	100
3. John	9 mos.	2+	76
4. Lawrence	8 mos.	2	48
5. James	9 mos.	2	73
6. John	7 mos.	2	43
7. Annette	9 mos.	2	49
8. Dale	14 mos.	2	100
9. Michael	12 mos.	2+	101
10. Michael	11 mos.	2	63
11. Kathryn	16 mos.	3	140
<hr/>			
(109)	9.90 Avg.	(22)	2.00 Avg. (818) 74.36 Avg.

<u>Name</u>	<u>Length of Time Instructed</u>	<u>Fair Group</u>	<u>Lessons Completed</u>
		<u>Units Completed</u>	
1. Michael	10 mos.	2	66
2. Kathleen	5 mos.	2+	32
3. Rosemary	9 mos.	2	89
4. Sharon	10 mos.	3	121
5. David	16 mos.	3	126
6. John	5 mos.	2	69
7. Jacqueline	19 mos.	3	154
<hr/>			
(74)	10.57 Avg.	(17)	2.43 Avg. (657) 93.86 Avg.

<u>Name</u>	<u>Length of Time Instructed</u>	<u>Poor Group</u>	<u>Lessons Completed</u>
		<u>Units Completed</u>	
1. Daniel	18 mos.	1+	130
2. Joseph	13 mos.	2	93
3. Kevin	7 mos.	1	69
4. William	11 mos.	2+	159
5. Christine	22 mos.	2	147
6. Joseph	24 mos.	3	196
7. Celia	7 mos.	1+	77

(102) 14.57 mos. (13) 1.86 Avg. (871) 124.43 Avg.

a. Group A advanced further into the unit structure at a lower lesson rate and within a shorter duration of time. This group completed more than two units at an average rate of 67 lessons within an eight month period.

b. Group B completed Unit II at an average rate of 75 lessons within an approximate 10 month period.

c. Group C completed more than two units at an average rate of 94 lessons over a $10\frac{1}{2}$ month period.

d. Group D completed less than two units at an average rate of 124 lessons within a $14\frac{1}{2}$ month period.

However, Group B did not achieve as well as Group C, having completed only two units to the almost $2\frac{1}{2}$ units recorded

for Group C. Within these results it is also noted that Group B had the lower frequency rate - 2.82 as compared to a frequency rate of 3.86 for Group C.

When these two groups, which are most widely divergent in frequency rate, are compared, Group C has advanced nearly half a unit beyond Group B and has also recorded 20 lessons and slightly more than an additional half month of instruction time.

6. Implications

There does seem to be a correlation between the duration of instruction and orientation and mobility success. The most successful students need the least instruction and consequently the shortest duration of time to advance within the unit structure.

The least successful students need the greatest number of lessons and consequently the longest duration of time to advance within the unit structure.

On further analysis, there is probably less difference in ability between the good-fair groups than is supposed. A greater amount of difference seems to lie between the poor and the fair students than between any of the top three ability groups.

7. Method for Grade Level

- a. Orientation and mobility instruction was offered from grades five through 12 to explore the effects of such instruction at the different levels.
- b. The results and implications of this particular study were determined by the observations of the orientation and mobility instructor who noted the reactions of the participating students, their teachers and their parents, to instruction at the different grade levels.

8. Results - Obj. #2

The entire group of students began receiving instruction in orientation and mobility between the grade levels of five and nine. These same students received additional instruction at later intervals and often at more than one grade level, which accounts for the greater number of instructions in the last column.

<u>Grade</u>	<u>No. Of Students Rc'g. Beginning O/M Instructions</u>	<u>No. Of Students Rc'g. Additional Instr. At A Later Grade Level</u>
5	2	
6	23	2
7	3	20
8	3	11
9	1	18
10		5
11		5
12		1
Total	32	62

- a. The majority of the students (23), received instruction at the sixth grade level.
- b. The next most frequent level of instruction was reached at the seventh grade level where 20 scores were recorded.
- c. Eighteen students received instruction at the ninth grade level.
- d. Eleven students received instruction at the eighth grade level.
- e. The students enrolled in the remaining grades (10, 11, and 12) numbered five or less, receiving instruction at each grade level.
- f. The majority of students who received either beginning or additional orientation and mobility instructions received them at grades six through nine, with the sixth grade predominating.

9. Implications

The theory that older students would be the best subjects was soon reversed. A number of these older children outwardly expressed a desire to cooperate in order to gain travel skills, but frequently resisted the actual application of learned skills to consistent travel.

Among the factors contributing to this was that some of the children, teachers and parents were already resigned to the fact that the use of a sighted guide was the most effective mode of travel for their purpose. (In one center the use of a "sighted companion" was used in direct opposition to the administrative philosophy of teaching independent travel.) In many cases there were instances of long-term parental over-protection and the cane was not always accepted as a travel tool by the parents or the child.

There was a general lack of experience in the background of blind children and a corresponding lack of suitable sequential lesson plans, which hampered the instructor.

The ways in which these problems were alleviated or corrected are further discussed within Recommendations, (P.120).

As evidenced by the greater number of students who received instructions at the sixth grade level, this particular level seemed to lend itself to orientation and mobility instruction more readily than any other.

Several reasons which are listed below made the sixth grade the most practical grade for the introduction of orientation and mobility instruction.

- a. There was a concentration of students enrolled in each of the centers for the blind. These centers included the first through sixth grades. The instructor could make maximum use of his time by frequently scheduling more than one student at each center.
- b. The use of establishing a consistent training area for orientation and mobility purposes was much simplified by the use of only three centers and their environs rather than a diversity of schools which would have to be thoroughly investigated and planned for each individual student.
- c. The maximum use of the resource teachers as additional trained staff members was enhanced by introducing and constantly reinforcing a uniform method of instruction.
- d. A spirit of cooperation existed at the centers between the administrative personnel, the classroom teachers and the special education teachers which was not always easily achieved at other schools.

- e. The amount of travel time spent between students was considerably lessened.
 - f. There was a tangible goal to be reached at this particular grade level: the procedure of transferring the student to his own neighborhood (or parish) school at the seventh grade level gave the student realistic incentive and motivation for learning how to travel independently. The year of preparation, from the sixth to the seventh grade, made this goal accessible for the great majority of students.
 - g. The acceptance of the cane as a travel tool and formal instructions in its use were more apparent within the lower grades than at the upper levels.
10. Summary and Conclusions (Related to Obj. #2) "How much instruction should be given children at the various grade levels and with what frequency?"
- a. This study, which was dependent upon a resource setting, demonstrated that orientation and mobility instruction can best be introduced at the sixth grade level.
 - b. Good results were also achieved at the seventh and eighth grade levels, but a series of negative factors began to interfere as the grade and age level increased.

These same factors were less prevalent at the lower levels.

- c. The frequency of instruction varied for the different grade levels but was not so dependent upon grade level as 1) establishing continuous or steady progress within the unit structure, or 2) the amount of time that could be utilized without unduly competing with other academic subjects within the child's regular school schedule.

An optimal frequency rate seemed to be centered around a three-day per week schedule with each lesson approximately 30 to 40 minutes long. The first two units were dependent upon a schedule of at least this frequency, while Unit III could be achieved with less frequent but longer lessons.

Unit III, consisting of lessons of a longer duration, (40 to 60 minutes or more) - depended on the complexity of the lesson and the additional travel time which might be involved within the lesson plan.

- d. The duration of instruction time necessary for all of the participating students to complete somewhat more than two units averaged almost eleven months.

- e. The orientation and mobility instructor observed that: Orientation and mobility instructions must be frequent enough to allow for at least a reasonable amount of progress to be made, as continuous progress is desirable. If the lessons are spaced so that the previous lesson must be reviewed in great detail before any new advances can be made, or the student is lagging in interest due to infrequent lessons, the frequency rate must be stepped up.
- f. On the other hand, if it can be avoided, instructions should not be so frequent as to interfere with the child's regular academic schedule. This particular statement reflects a scheduling problem that may be inevitable with an itinerant program and where orientation and mobility instructions may be in competition with the regular academic schedule. In many cases advance planning and a cooperative effort with the child's teachers can avoid conflicts.

The frequency of lessons determines the over-all duration of instruction. The average frequency of lessons for the participants in the project was $3\frac{1}{2}$ per week. It might have been possible to "complete" a student

in sixth months time with a frequency of five lessons per week, but it would not necessarily be desirable, because the short periods of time in which he had obtained his travel skills might not have been of long enough duration to:

- 1) assess his ability in changing climates,
- 2) adequately affect parental attitudes toward independent travel,
- 3) evaluate emotional stability under duress, and
- 4) allow for a more gradual growth in travel equated to his present age and maturity.

- h. Within this project it was noted that the first two units of instruction depended a great deal upon a frequency rate of at least three lessons per week.
- i. In some cases, formal instruction had been previously introduced and then discontinued when the student performed well and met his immediate needs. When the student's travel needs broadened and called for advanced instruction, this could be given on a less frequent basis. If a good foundation had been established, a two-day per week schedule was often adequate. This was borne out by the statistical information on advanced students. The average frequency

rate of 2.37 lessons per week. However, the average duration of an individual lesson was often doubled or trebled depending upon the extent of travel involved. The use of public transportation was included within Unit III (3) and travel objectives were necessarily expanded to more distant places.

C. OBJECTIVE #3 - "What effect will orientation and mobility training have upon the child's social and academic activities?"

1. Method for Social Activities

- a. A questionnaire was sent to the parents of the participants, asking them to list by year the kind of activities engaged in by the children.
- b. The list of individual activities was compiled for each year and averaged for the group.
- c. A comparative study was made by comparing the average scores prior to instruction with the scores achieved for each successive year after receiving instruction.

2. Results

The social activity scores for the years following the inclusion of orientation and mobility into the program show an average increase of one activity per child for the group responding to the questionnaire.

By year:

1963

Number of students	16	
Number of Scores	35	
Average Score	2.19	
Range	0 to 5	Median Score - 2.00

1964

Number of Students	16	
Number of Scores	40	
Average Score	2.50	
Range	0 to 6	Median Score - 2.00

1965

Number of Students	16	
Number of Scores	46	
Average Score	2.87	
Range	0 to 10	Median Score - 3.00

1966

Number of Students	16	
Number of Scores	50	
Average Score	3.12	
Range	0 to 13	Median Score - 3.00

The determination of a Social Activity Quotient is made by averaging the number of activities engaged in prior to orientation and mobility instruction or by using the number available at the time orientation and mobility training begins. Those averages which follow during the next consecutive years will represent either a rise, fall or stable characteristic in the number of social activities engaged in by the participants.

- a. Six students with a base point of 2.67 raised the social activities quotient to 4.39 for an increase of 1.72.

- b. Seven students remained stable at 1.14.
 - c. Three students made a decline from an original social activities quotient of 3.67 to 3.11, a loss of .56.
3. Implications

The poor response of the parents to the questionnaire (only 50%) severely limits the results and implications for the entire group. It could be argued that only the parents of the more successful or socially adept children responded. However, it is the instructor's opinion that the responding group compared favorably with the non-responding group.

Within the normal instructional program various social clubs and activities were pointed out to the students who were expanding their neighborhood or community travels. In some cases travel routes were effected to the Junior Achievement Group, the Chicago Boys' Club, the McDowell Settlement, Boy and Girl Scout clubs and other facilities which were organized and utilized for teenage activities.

It again may be argued that the increase in the amount of social activity may only mirror an increase prevalent

for any teenage group but, since some of these children used their independent travel skills to get to and from these social events, it is a reasonable assumption that orientation and mobility instruction was the catalyst which enabled these individuals to participate more freely in the social activities of their choosing.

4. Method for Academic Averages

- a. Data for the 32 participating students were gained from individual academic achievement records.
- b. A base academic score was computed for each individual, using the two consecutive years prior to orientation and mobility instruction.
- c. The progress made during the academic year which included orientation and mobility training and that following the first year of training was assessed for each participant.
- d. Upon termination of this project the grade averages for the two years prior to training would be compared to the year which included and followed orientation and mobility instruction.
- e. Any change in academic achievement would be noted.

5. Results

ACADEMIC ACHIEVEMENT SCORES FOR ORIENTATION AND MOBILITY STUDENTS

	1	2	3	4	5	6	7	8
NAME	GRADE AVG. 2 YRS PRIOR	GRADE AVG. INC. TRN'G	DIFF	1 YR LATER	DIFF	2 YRS LATER	DIFF	OVER ALL
Lynne	85.36	82.36	-3.00	84.00	-1.36	--		-2.18
Charles	79.34	82.60	+3.26	80.00	+ .66	80.06	+ .78	+1.55
Michael (1)	82.66	82.09	- .57	79.40	-3.26			-1.92
Ricardo	84.00	81.80	-2.20	78.66	-5.34			-3.77
Michael (2)	75.92	79.40	+3.48	78.33	+2.41	80.20	+4.28	+3.39
John (1)	90.60	91.90	+1.30	90.71	+1.11			+ .70
Anthony	80.65	72.10	-8.55	No Further Data				
Kathleen	80.76	78.33	-2.43	83.55	+2.79	78.60	-2.16	- .60
William	86.50	83.40	-3.10	89.00	+2.50	91.00	+4.50	+1.30
Barbara	84.60	87.28	+2.68	82.71	-1.89	86.33	+1.73	+ .84
Theresa	79.80	88.20	+8.40	87.90	+8.10	86.14	+6.34	+7.61
Kevin	75.09	73.82	-1.27	No Further Data				
Daniel	83.68	84.00	+ .32	83.40	- .28	87.00	+3.32	+1.12
John (2)	78.77	76.25	-2.52	84.11	+5.34	86.00	-7.23	+3.35
Linda	80.65	85.66	+5.01	88.43	+7.78	89.57	+8.92	+7.24
Lawrence	77.11	78.77	+1.66	77.00	- .11			+ .77
Rosemary	81.21	81.66	+ .45	77.50	-3.71			-1.63
James	83.25	81.00	-2.25	81.25	-2.00			
John (3)	81.45	78.70	-2.75	79.30	-2.15			-2.45
Joseph (1)	86.39	84.50	-1.89	88.00	+1.61			
Annette	85.84	91.00	+5.16	85.88	+ .04			+2.60
Dale	88.82	88.40	- .42	86.43	-2.39			
Michael (3)	77.20	81.00	+3.80	No Further Data				
Sharon	82.54	88.20	+5.66	85.80	+3.26	83.00	+ .46	+3.12
David	77.47	88.20	+10.73	82.90	+5.43	67.90	-9.57	+2.19
John (4)	74.41	78.33	+3.92	77.45	+3.04	74.45	+ .05	+2.31
Christine	88.46	81.70	-6.76	83.25	-3.21	79.87	-8.59	
Kathy	80.50	85.72	+5.22	81.00	+ .50	81.80	+1.30	
Joe (2)	76.61	80.20	+3.59	85.00	+8.39			
Jacqueline	85.88	90.60	+4.72	92.11	+6.23			
Celia	69.87	79.00	+9.13	No Further Data				
Michael (4)	92.40	92.20	- .20	95.00	+2.60			

- a. The collective academic averages of 32 participating students for the two consecutive years prior to orientation and mobility instruction equaled 81.97%.

- b. The collective academic averages of the same 32 students for the year in which orientation and mobility instruction had been given equaled 83.02%--a difference of +1.05.
- c. The collective academic averages of 28 participating students for the two year period following orientation and mobility instruction equaled 82.61%. (Further data on four students were not available.)
- d. The collective academic average of the same 28 students for the year in which orientation and mobility had been given equaled 84.01%--an increase 1.40 over the cumulative academic average for the two years prior to orientation and mobility instruction.
- e. The collective academic averages of the same 28 students for the year following orientation and mobility instruction equaled 83.86%--an increase of 1.25 over the cumulative academic average for the two years prior to orientation and mobility instruction.

6. Implications

If academic achievement, as reflected in the cumulative grade averages of 32 students remained relatively stable or experienced a slight rise, it could be said that the inclusion of orientation and mobility training did not

significantly affect the achievement of this group. But, because a control group or a similar random sample was not used as a basis of comparison, the only inferences which can be made from this survey are as follows:

- a. In spite of the inclusion of another subject, in the form of orientation and mobility, which frequently replaced a portion of the school day for the project participants, academic achievement remained relatively stable--grade averages suffered no declines but actually experienced a slight rise.
- b. The cumulative grade averages of 28 students (who had data available) continued to show slight gains in academic achievement for the year in which orientation and mobility instruction was given, and the year following orientation and mobility instruction.

D. OBJECTIVE #4 - "An evaluation of factors related to success in orientation and mobility training" by H. Joan Costello, Ph.D. and P. Bledsoe, Ph.D.

1. Introduction

In any learning situation it can be anticipated that some participants will be more successful than others in mas-

tering the tasks presented, either in speed or degree of mastery, due to variations within and external to the individual. Informal observations of blind children reveal a host of factors which appear to be operating in all of their endeavors, with the degree of significance being determined by the nature of the activity to be learned. Some of these factors are unique to the blind, others are common to all children. In a large group classified as blind, there will usually be a few who have some limited vision, others none at all. Some children are disabled from birth, others acquire their disabilities later in life due to disease or trauma. Occasionally hearing defects are also present in blind children. Variations occur in general physical health and coordination, in intelligence and in social and emotional maturity. Finally, there are such factors as independence, self-esteem, confidence, sense of responsibility and motivation which stem from a child's image of himself and which differ from child to child. Intimately related to the child's self-concept is the quality of the relationships he has with his parents and the impact of their child-rearing methods, their attitudes and their expectations.

The primary objective in conducting psychological evaluations of the children in the training project was

clarification, on a demonstration basis, of the relative importance of some of the factors which are related to success in acquiring orientation and mobility skills. In particular it was expected that there would be differences among the children in degree of vision, age at which disability occurred, intelligence, social and emotional adjustment and parent attitudes and support on the one hand and in their acquisition of mobility skills on the other. It was considered worthwhile, in terms of planning future training programs, to explore the significance of these differences for the repertoire of mobility skills the children were ultimately able to learn. An initial plan to do a comparative study of the children before and after mobility training, in order to determine positive changes in the direction of greater independence and maturity as a result of acquiring these new skills, was also considered. This was discarded, however, in view of the variety of other circumstances and experiences intervening in the children's lives during training, and the lack of a control group to evaluate change as being related to mobility training rather than natural development.

a. Sample Studied

Sixteen blind children attending day classes in the Catholic schools were subjects for study. Six were in Group I, being sixth grade students in 1962-63, six were in Group II, 1963-64, and four were in Group III, 1964-65. Children in Groups II and III were fifth grade students.

Of the sixteen children, one in Group I, two in Group II and one in Group III had some travel vision. An additional subject in Group I had had some vision until 1960. One boy (Group I) had a hearing loss, and another in the same group was epileptic. Age at onset of blindness, and etiology of blindness, varied greatly among the children.

Inasmuch as the population was a heterogeneous one, primary emphasis in this report will be placed on Group I, the first group of sixth graders involved in the orientation and mobility program. These children were studied more closely than succeeding groups.

Clinical assessment of the population studied was directed toward the following:

- 1) Level of intellectual functioning
- 2) Level of social and personal functioning
- 3) Parental support and encouragement of increasing independence

b. Orientation and Mobility Training Program

The nature of the training program is detailed in other sections of the project report. The children were taught individually and the program, while standard, was adapted to individual strengths and weaknesses. Most children were seen several times each week, the duration of time being determined by progress, readiness for further training, etc. In addition to the formal aspects of teaching mobility techniques, the instructor had a firm relationship with nearly all of the students. His roles as guide, counselor, friend and substitute father seemed significantly therapeutic in terms of personal and social growth.

2. Methods

Psychological tests, interviews, rating scales and observation techniques were used to supplement the information on the etiology of the visual disability and extent

of vision. The choice of tests was based upon familiarity with performances of blind children and the lack of time and resources for developing or refining techniques which might tap other areas of functioning.

The following tests were administered:

Wechsler Intelligence Scale for Children-Verbal Scale

California Test of Personality

Sentence Completion Test - Dorfman

Write A Story - Family and School

Three Wishes

Clay Model of a Person - (used experimentally only)

In addition to the individual tests, a rating scale for independence and personal-social maturity was developed and completed for each child by parents, teacher, mobility instructor and psychologist. A second rating scale was devised in order to evaluate the success of the children in acquiring orientation and mobility skills. Finally, interviews were conducted with each child, covering such areas as chores, goals, free time activities, feelings about blindness, and things each child would most like to see.

Data analysis was planned in very simple terms, after recognition of the great diversity of individuals in this

small sample. A chart is presented listing the rank ordering of children on the Mobility Scale in relation to their rankings on intelligence, personal-social functioning, and parent and teacher evaluation of personal-social maturity and independency. Because of the age difference at the time of initiation of training for Groups I and II, it was decided that each group of children would be ranked independently of the other two groups.

3. Results

A clinical analysis, drawn from test data and clinical impressions, will be presented.

A PSYCHOLOGICAL EVALUATION OF THREE GROUPS OF TRAINEES

GROUP I	Independence Maturity Rating Rank	WISC Rank	California Test of Personality Rank	Sent.Comp. & Stories Rank	No. of Chores	O/M Rank
Michael (1)	4	3	4	2	1	1
Anthony	6	6	-	6	1	6
Theresa	2	2	1	4	1	4
Michael (2)	5	5	5	3	2	2
Kathryn	1	1	2	1	2/3	3
Joseph (1)	3	4	3	5	2	5
<u>Group II</u>						
Richard	4	3	-	2	3	3
Daniel	6	5	-	4	1	6
John	5	6	-	3	3	2
David	2	2	-	-	3	1
Christine	3	4	-	5	1	5
Jacqueline	1	1	-	1	2	4
<u>GROUP III</u>						
James	2	3	3	4	1	1
Joseph (2)	3	4	4	3	2	4
Dale	1	2	1	1	3	3
Michael (3)	4	1	2	2	2	2

a. Group I

1) Description

The children in this group were four boys and two girls. All were in or had just completed sixth grade, in the same school, spending varying portions of the school day in sighted classes or resource room (blind children's home room) classes. All were white, Catholic, living at home. All but one lived with both parents, and he lived with an aunt. Only the latter boy had blind parents. Etiology of blindness was: hereditary cataracts-1, glaucoma-1, retinoblastoma-1, retrolental fibroplasia-3. The boy with cataracts had some travel vision, the boy with glaucoma had vision until 1960. The girl with retinoblastoma had some vision until age two. One girl with retrolental fibroplasia had some vision until age 14 months.

2) Intellectual Functioning

Intelligence, as measured on the WISC Verbal Scale, ranged from I.Q. 57 to I.Q. 148, with a mean of 110. In the case of the four children blind from birth or early childhood, success in learning mobility

skills was directly related to measured intelligence. It should be noted that the two boys who ranked lowest in mobility skills had the lowest WISC I.Q.'s, were blind from birth and had additional medical defects.

3) Personal-Social Functioning

Scores on the California Test of Personality are questionable since the response of "yes" or "no" was given orally after the child either read the test item in Braille, or listened while it was read. Some of the children gave only "ideal" answers which may reflect either lack of self-awareness or, more likely, unwillingness to state real attitudes. Some of the children went overboard in the other direction, considering all possible applications before responding. In the writer's opinion, the Sentence Completion and Write-a-Story Productions were more consistent with other observations.

Rankings on the Personal and Social Adjustment Scales on the C.T.P. were not helpful in discriminating successful and unsuccessful travelers.

Most of Group I scored below the 50th percentile on all subscales.

Sentence Completions and Stories written about "A Family" and "A Boy (or girl) in School" yielded scores for affect, independence and self-esteem. These scores arranged the children in the same general sequence as relative success in mobility training.

Clinical impressions of personal-social maturity indicated some areas of immaturity in all the children. The best adjusted child in Group I experienced many feelings of inadequacy as she neared adolescence and reached toward greater independence. Her ego strengths were considerable, and would place her in the best position for later satisfactory adjustment. She was the best traveler of the four totally blind youngsters.

The best traveler in the Group had had a wide range of experiences and he was interested in many things. He had grown up in a confusing home situation. His mother had been married

three times, and although she was seldom home, she took an interest in her son, largely in the form of expressing her expectations. He was living with relatives who offered little realistic guidance, although he received adequate care. He had little sense of personal worth, little self-confidence, a number of nervous mannerisms and a feeling of discomfort in social situations despite excellent conversational skills.

Number two traveler was an unhappy, rebellious boy who felt unaccepted by his family. He espoused goals he would be unlikely to achieve. He had been led to expect more of himself that he seemed able to produce. He had a very difficult time getting along with people for extended periods of time.

Number three traveler was the girl described two paragraphs above as the best adjusted child in Group I.

Number four traveler was a bright, reasonably happy girl with secure family experiences.

Despite a wide range of experience, good social skills and general social acceptance, she was hostile toward efforts to make her more independent. She was very concerned with "receiving" from others rather than extending herself. She had been much indulged by very "giving" parents. She had many strengths but may hesitate to ever reach too far beyond home.

Number five traveler was the first born, a twin, to young parents who had given him much security and stability. His development had been slow and difficult throughout childhood. He was suspicious of people's interest in him, although recently he accepted that he was a person as well as an object of curiosity. He was outspoken, and made steady progress toward a more satisfactory adjustment. He was not unlike many children who were premature and blinded soon after birth from retrolental fibroplasia.

Number six traveler was a retarded, epileptic boy with multiple problems. He was not able to relate interpersonally with any warmth. He was remote and retained many autistic mannerisms,

which one sees in young blind children. He made progress with extensive help from teachers, but he seemed to have no chance for independent functioning as an adult.

4) Rating Scale for Independence and Personal-Social Skills

A three-point scale was constructed to elicit perceptions of the child from those adults who work with him; i.e., parents, teachers, mobility instructor, psychologist. The children were not asked to rate one another since their judgments would be based on minimal or no contact with some children as opposed to extensive contact with others.

Twenty-seven judgments were made on eight variables (friendliness, considerateness, grooming, leadership, sportsmanship, independence, self-confidence and cooperativeness). A rank of below average was given one point, average two points, good three points. Thus minimum score would be 27, maximum 81. The scores reported are means of scores given by the raters.

As noted for the other tests the pattern of scores conforms to the degree of success in mobility training, except for the two boys who have had vision.

b. Group II

1) Description

The children in this group were four boys and two girls. All were in the fifth grade, in three different Catholic schools, where they spent various portions of the school day in sighted or resource classes. All of them were white and Catholic. One had some Latin background and one boy migrated from Poland around 1960. Five lived at home, one in a foster home. One boy had blind parents. Etiology of blindness was: hereditary-1, traumatic brain injury-1, retrolental fibroplasia-3, unknown-1. Two boys had considerable travel vision. One boy had sight until a bicycle accident at the age of four.

2) Intellectual Functioning

Intelligence, as measured on the WISC Verbal Scale, ranged from I.Q. 72 to I.Q. 140, with

a mean of 107. A similar pattern was observed for Group I. Success in mobility training is related to intelligence for the children blind from birth or soon afterwards. The boy with the lowest I.Q. migrated from Poland at about age 12, and has learned English as a second language. It is thus difficult to evaluate his level of intellectual functioning on a verbal test.

3) Personal-Social Functioning

The California Test of Personality is not reported for this group. The Brailled version used with Group I was too advanced, apparently, since the children responded almost entirely in terms of "ideal" responses, i.e., what they perceived to be "best". This does highlight an observation which the writer has made in the past, namely that blind children who are approaching adolescence and even later tend to be extremely rigid in dealing with attitudes. Their concern with propriety is rigid, or was in the population known to the writer. Only two of the six children in Group II were able to be at all "open" in expressing attitudes and feelings.

Sentence completions and stories were more productive for this group. They do not, however, seem to reflect success in mobility training.

Clinical impressions of personal-social maturity were as follows, presented in order of success in mobility training.

Traveler one was a bright boy with considerable travel vision, son of ambitious, intelligent blind parents. He was extremely concerned with independence and autonomous functioning, but his "chip on the shoulder" attitude and lack of proper caution for his safety reflect immaturities. This boy wanted to be independent of people, canes, dogs, etc. His excessive concern left him socially remote. He had good potential for later adjustment if he could accept his limitations realistically.

Traveler two was an older boy with some travel vision. He migrated from Europe recently and little is known of his background. He was a very rigid person but his inner strengths seemed adequate for a conforming, independent adjustment with limited interpersonal exchange.

Traveler three was an immature but appealing boy who seemed more adequate with adults than children. He was fearful of peer competition though he competed adequately with himself. He still retained memories of seeing things before he lost his sight at age four. Despite a somewhat unstable early family history, his current foster placement seemed to offer security and warmth. He would probably do well as an adult, since he seemed to be making steady progress toward independence and social adequacy.

Traveler four was an effervescent redhead who was bright, verbal, socially adept, independent and happy. She had a stable family background and her parents expected much of her. She was sometimes overbearing verbally and careless with regard to personal safety, which related to her lofty expectations. She could be offensive to others in conversation, but she seemed capable of modulating the intensity of her social exchanges. She impressed the writer as the best adjusted child in Group II. She had some light perception and had been blind from birth.

Traveler five was a very inhibited, sheltered girl who was barely able to relate in an interpersonal exchange. She reflected her mother's fears for her independence. She will definitely be limited in her life adjustment because of emotional constriction. She was "scared to death" of independence in any form.

Traveler six, who had a sighted twin brother, was a somewhat intellectually limited boy with limited experiences. His family had been unable to understand or meet his needs and he was detached in interpersonal exchanges. His awareness of the real world was limited. He concerned himself with narrow interests, and though he was not schizophrenic, his mode of dealing with life was tenuous. His expectations were minimal and his self-concept was very poor.

4) Rating of Independence and Personal-Social Skills

The pattern obtained from means of rater scores compared well with the level of success in mobility training. The highest score was obtained by the best traveler of the totally blind children in the group.

c. Group III

1) Description

This group, which began mobility training in the 1964-65 school year, was initially made up of four boys and a girl. The girl was dropped because of onset of a severe diabetic condition. She was the sister of a boy in Group I and had more usable vision than any of the other children in the sample. The four boys, fifth graders, attend two Catholic day school programs for the blind located in sighted elementary schools. They spend varying proportions of the school day in classes with sighted children, and in the resource room. All lived at home; one boy's mother was deceased, but he lived with his father and maternal grandmother. Two were "only" children. Etiology of blindness was retrolental fibroplasia. None had useful travel vision, and all had been blind from birth or shortly afterwards.

2) Intellectual Functioning

Intelligence, as measured by the WISC Verbal Scale, ranged from I.Q. 103 to I.Q. 136. Three

of the four had I.Q.'s above 130. The latter boys were of similar age, whereas the boy with the lowest I.Q. was about three years older than they. It was difficult to effectively judge the relationship of I.Q. to mobility success in this group, except to note that the boy with the lowest I.Q. was the least successful.

3) Personal-Social Functioning

This group was given an oral administration of the California Test of Personality for grades 4-8. The brighter boys responded with what appeared to be candor, whereas the other gave answers in keeping with external norms. The three whose scores indicated considerably less competence in the area of social adjustment than personal adjustment, had all had wide experience, and intense family relationships. They related well interpersonally and displayed a zest for life. One was among the best adjusted blind children in the writer's experience.

4) Rating Scale for Personal-Social Skills

The scores on the CTP do not relate to success in mobility training. From clinical impression,

it would appear that "nerve" or "daring" may be most related to success, despite internal feelings of inadequacy. The most successful boy was an extrovert and something of a "show-off", the second was verbally outgoing but somewhat less physically adventurous, the third was a well balanced boy who may have been more aware of the total meaning of mobility and rather more cautious. The fourth was extremely constricted, had had less life experience, and was generally unable to extend himself.

Sentence completions and stories were not particularly helpful in relationship to success in mobility training for this group, except perhaps over time. It would be this writer's prediction that eventual success in using mobility skills for reaching independent adult functioning would place the boys in the order of their scores on three personality tests.

As an experimental digression, each child was asked to model a "person" from clay. There has been some attempt by Wetki et al, to develop

this technique for personality study of blind persons. Results on the four children would suggest that the best "adjusted" were also most keenly aware of what a person "looks like". The perfectionistic boy returned a striking sculpture made by his father, apparently because the parents could not accept his own production. The boy with overall poor adjustment (least successful in mobility training) was unable to do anything with the clay beyond molding it into a ball. None of the children had previously worked with clay to any extent.

Clinical impressions of these children were as follows:

Traveler one was a bright, very appealing boy who was extremely adept in relationships with adults. He was an only child, was indulged by a father and grandmother who felt sorry for him because he was blind. His mother had also indulged him before she died of a chronic condition. This boy had resources for an independent successful adult life, but his involvement in an

intense dependency relationship was very detrimental to his personal growth. He was socially immature and demanding, and had some difficulty in peer relationships. Mobility training could be considered here a therapeutic intervention, reinforcing independence rather than dependence.

Traveler two was the only child of two European-born physicians. He was treated as a younger child with regard to independence, however much was demanded of him in the area of achievement. He tended to "drive" himself in achievement situations, and might be said to have neurotic concern with perfect completion of tasks. The latter probably stood him in good stead for mobility training. He enjoyed adults and got along well. He had some friends.

Traveler three was unlike most blind children. He manifested an easy style in interpersonal exchange with both peers and adults, being confident in a realistic way in new

situations, etc. He would almost certainly adjust well as an adult. Like the best adjusted children in Groups I and II, he was able to talk freely of what blindness meant, what he would like to see and what conflicts he had yet to resolve.

Traveler four was a sad, very poorly adjusted boy with apparent feminine identification. He smiled always, despite an almost paranoid attitude toward peers. He was rigid, judgmental, moralistic, completely constricted. He was defenseless among blind children who were much younger than he. He was a ready scapegoat. It was difficult to imagine any but marginal independence for this boy, and he would expect mobility to be a serious threat to his psychological economy.

d. Additional Observations

During the second year of the mobility demonstration grant, a series of two meetings was held for parents, in groups of 10 to 12. The focus of the meetings was the meaning of independence, the risks, fears, etc. This appeared to be a fruitful technique, even when

meetings were infrequent. By and large, the least adequate parents did not come. The purpose of the meetings were "service" as well as "observation" of parental feelings and attitudes.

A full day workshop was held for all children in the mobility program, at the point when Group III had a minimal amount of training. The workshop permitted further observation of the children, while giving them experience in: (a) role playing of two social situations, (b) mobility skill competition with children of similar standing, and (c) group discussion of feelings about independence, mobility, etc., as they occurred in day-to-day life. These sessions were apparently beneficial, and the children requested further workshops.

4. Summary and Conclusions

Despite the diversity of kinds and degrees of blindness represented by the sixteen children studied, there appeared to be some trends. Intelligence and degree of current or recent vision appeared most significant in predicting success in mobility training. The experiential deprivation resulting from total blindness is

difficult to comprehend. In the writer's experience, children who had never seen even shadows have intense difficulty establishing themselves as discreet, clearly identified, human persons who comprehend both similarities and differences between themselves and others (sighted or blind).

If one had a large sample of children with similar etiologies, degree of blindness, and intelligence, the following factors would seem to take on importance in acquiring mobility skills:

- a) Degree of confidence, freedom and experience in interpersonal exchanges. This is most probably a function of early mother-child exchange. The best adjusted children seemed to have parents who have dealt with their feelings about having a blind child, and who could freely admit their past and current reactions as parents. The most constricted and/or dependent children have parents whose own (apparent) feelings of guilt made it impossible for them to permit the kinds of risks which are essential to living. They assumed their children should be dependent upon others, that they should "receive" friendship without extending

it, etc. The implications of these observations are clear. Early intervention in the form of casework for parents is important. One parent shared her experience in another state, where casework services are provided as soon as the state receives notice of a blind child's birth.

- b) Direct parental response to notions of independence. As suggested above, the child's interpersonal style and his knowledge of the world seemed to reflect the parent's fears about independence, as well as their denial of problems that might exist. The degree to which they use defenses of denial and projection in discussing their child seemed predictive of the child's ability to "face life".
- c) Child's ability to talk about blindness, its meaning to him, and what he would most like to see. This relates to parental ability to discuss feelings about blindness. Well adjusted, independent children talk freely, without ruminating, and find it helpful to imagine what might be different for them if they were sighted or if everyone were blind.

d) Child's ability to take over chores in the home, and to show interest in cooking, cleaning, fixing things etc. Again the degree of responsibility the child takes seems directly related to parental expectations.

It should be noted however, that even the best parental acceptance and understanding of the blind child does not compensate for the experience of visual deprivation. The greater the visual loss, the greater is the difficulty in achieving an independent adjustment and the greater is the degree of parental resourcefulness needed to bring the child to independent maturity.

Psychological assessment of blind children, to predict success in mobility training, may add little additional weight to the predictions made by teachers and mobility instructor on the basis of degree of blindness, intelligence and current personal-social adjustment. However, psychological evaluation may predict long-term independence better than short-term success in mobility training.

Finally, it appears that the role of the mobility instructor as friend and counselor is at least as important as the skills taught. Observation of the instructor in this project, together with reports from children and parents suggest very strongly that a mobility training program can have therapeutic as well as educational value.

The orientation and mobility instructor noted other factors also indicating ultimate success which have not been discussed within Objective #4 related to orientation and mobility success. These factors include:

1. The extent of hearing loss. Children with deficient hearing cannot be as capable or as independent within their sphere of travel as those with normal hearing because they are unable to utilize sounds effectively. Advanced travel within a business district is particularly impaired because traffic sounds provide the basic clue for making correct street crossings.
2. Individual motivation related to the gaining of specific travel goals. A child who has a strong motivation for using his independent travel skills to go to and from a desired objective will apply himself with greater zeal than a child with little or no desire for using his independent travel. Travel goals should be chosen carefully for this purpose in order to encourage and stimulate the participants and provide a strong motivation.

- E. OBJECTIVES #5 and 6 - "What effect does orientation and mobility instruction have upon enlarging the child's physical environment?" and "Does orientation and mobility enable him to better control his environment?"

These two objectives, while stated as separate entities, must be considered together because within the scope of this project one was not accomplished without the other: enlargement of the environment could not be accomplished without adequate control.

If a child progressed from one unit to the next, with each step reflecting progress in the enlargement of the environment, it was the instructor's responsibility to fix at least minimal standards of performance for each unit. If for some reason a student did not progress within the unit structure, his control of the environment was also fixed at this level.

1. Method for Determining Enlargement and Better Control of the Environment

- a. The 32 participants were observed or questioned during a personal interview as to the furthest extent of independent travel prior to orientation and mobility instructions.
- b. Thirteen items were then scored which reflected a graduated sphere of travel from the familiar, controlled area of the home to the unfamiliar and uncontrolled environment of the Chicago Metropolitan Area.

- c. Each child was marked as able to travel independently in these areas if he could meet his ordinary mobility needs without assistance. In almost all cases, deficiencies of travel were noted but poor travel was scored equal to good travel if no assistance was necessary.
- d. These same participants were again scored as to the furthest extent of travel using the thirteen items after receiving orientation and mobility instruction.
- e. Any expansion of independent travel following orientation and mobility instructions was recorded.

2. Results

The Extension of Travel Prior to O/M Instruction and After Instruction

Source: "Background Information On Individual Students" - Personal Interview - Observation

No.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Lynne	X	X	X	X	X	0	0	0	0							
2	Charles	X	X	X	X	X	X	X	X	0	0	0	0	0			
3	Michael (1)	X	X	X	X	X	0	0	0								
4	Richard	X	X	X	X	X	0	0	0	0		0	0				
5	Michael (2)	X	X	X	X	X	X	X	X	X	0	X	X	0			
6	John (1)	X	X	X	X	X	0	0	0	0							
7	Anthony	X	X	X	Transferred to another school system												
8	Kathleen	X	X	X	X	X	X	X	X	X	0	0	0				
9	William	X	X	X	0	0	0	0	0			0					
10	Barbara	X	X	X	0	0	0	0	0								
11	Theresa	X	X	X	X	X	0	0	0	0		0	0				
12	Kevin	X	X	X	X	X	Transferred to another school system										
13	Daniel	0	0	0	0	0	0	0									
14	John (2)	X	X	X	X	X	0	0	0	0	0	0	0				
15	Linda	X	X	X	X	X	X	X	X	0	0	0	0				
16	Lawrence	X	X	X	0	X	0	0	0	0			0				
17	Rosemary	X	X	X	0	X	0	0	0	0							
18	James	X	X	X	X	X	0	0	0								
19	John (3)	X	X	X	X	X	0	0	0	0							
20	Joseph (1)	X	X	X	0	X	0	0	0								
21	Annette	X	X	X	X	X	0	0	0								
22	Dale	X	X	X	X	X	X	X	0	0			0				
23	Michael (3)	X	X	X	X	X	0	0	0	0	0	0	0				
24	Sharon	X	X	X	X	0	0	0	0	0	0	0	0				
25	Michael (4)	X	X	X	X	0	0	0	0	0			0				
26	David	X	X	X	X	X	X	X	X	0	0	0	0				
27	John (4)	X	X	X	X	X	0	0	0	0		0	0				
28	Christine	X	0	0	0	0											
29	Kathryn	X	X	X	X	X	0	0	0	0	0	0	0				
30	Joseph (2)	X	X	X	0	X	0	0	0	0		0	0				
31	Jacqueline	X	X	X	0	X	0	0	0	0		0					
32	Celia	X	0	0	0	0	Transferred to another school system										

Code: X-The Furthest extension of travel prior to O/M Instruction

0-The furthest extension of travel after O/M Instruction

Items

1. Able to travel adequately in interior surroundings of the home
2. Able to travel adequately in interior surroundings of the school
3. Able to travel adequately in exterior surroundings of the home
4. Able to travel adequately in exterior surroundings of the school
5. Able to travel adequately for a distance of less than one city block (1/8 mile)
6. Able to cross streets of a residential nature
7. Able to travel independently for a distance of less than two city blocks
8. Able to travel independently for a distance of less than 1/2 mile
9. Able to travel independently for a distance of less than one mile
10. Able to travel independently for a distance of more than one mile
11. Able to utilize public transportation for the extension of travel
12. Able to utilize traffic signals at busy intersections
13. Capable of unlimited travel within the Chicago Metropolitan area

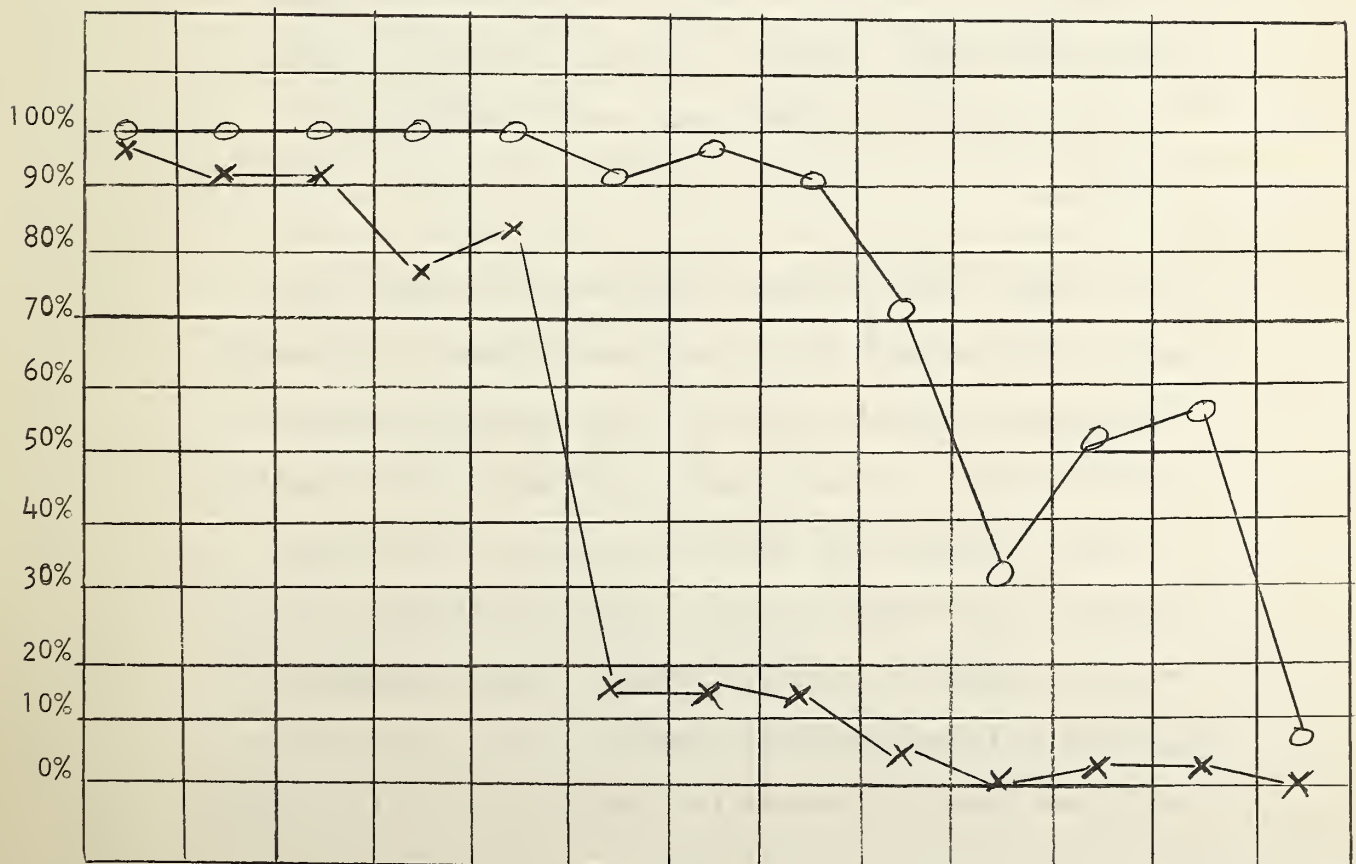
2. Results (Continued)

- a. The thirteen items constituted a graduated sphere of travel from the familiar controlled area of the home to the unfamiliar and uncontrolled environment of the Chicago Metropolitan Area.
- b. Each child was observed travelling within each itemized area, or questioned during a personal interview, as to the furthest extent of his independent travels prior to orientation and mobility training.
- c. Prior to training, each child was considered able to travel independently in these areas if he could meet his ordinary mobility needs without assistance. In almost all cases, deficiencies were noted. Poor travel was scored equal to that of superior travel if no assistance was necessary.
- d. Prior to regular instruction, the extent of travel listed on the chart as Items 6 and 7 were confined to the children who possessed usable residual vision (with only one exception).
- e. All remaining items prior to instruction were accomplished only by children with travel vision and no child was capable of unlimited travel (item 13) before instruction.

f. While these items represented the furthest extension of travel for each student without regard to the various deficiencies in the kind of travel that had been demonstrated, these same deficiencies were corrected and improved upon in all possible cases, following orientation and mobility instruction.

ENLARGEMENT OF TRAVEL OF 32 PARTICIPANTS ON THE O/M PROJECT BEFORE AND AFTER INDEPENDENT TRAVEL

INSTRUCTION ITEMS



X-Represents the percent of students completing this item prior to O/M instruction.
O-Represents the percent of students completing this item after O/M instruction
See Addendum for exact percentages completing items - P. 136

3. Implications

The unavailability of any independent travel instruction would leave few alternatives open to the average blind child. Self-taught travel would be a remote possibility, since most children would neither feel capable of trying this method, nor would they be encouraged by parents. Teaching by unqualified personnel is another possibility, though most parents are reluctant to assume this responsibility. It is most likely that travel would be strictly limited to the furthest extent of the child's knowledge. This would probably not have improved significantly without the inclusion of formal orientation and mobility training.

This formal instruction provided a means of establishing safe, efficient methods of travel which greatly increased the students' travel ability within a relatively short period of time. Prior to regular instruction, the extent of travel listed on the chart as items 6 and 7 were confined to the children who possessed usable residual vision, with one exception. Items 8 through 12 were accomplished only by children with usable residual travel vision and no child was capable of completing item 13 prior to instruction.

While the items marked with an "X" represented the furthest extension of travel for each student without regard to the various deficiencies in the kind of travel that had been demonstrated, these same deficiencies were corrected and technique improved in all possible cases during orientation and mobility instruction.

The scope of independent travel was broadened not only to meet immediate needs but as a natural course of events in preparation for a greater and more knowledgeable kind of independent travel. For example, prior to instruction, knowledge of the school environment was usually limited to only a few routes of travel between the resource room, the lavatory, and the main entrance of the school and the appropriate integrated classroom. With instruction, the entire school was utilized as a training area and eventually became familiar to the students; not only for his daily travel needs but also for his occasional needs. Room numbering systems, important architectural features, opportunities for sensory training, and other training procedures were introduced as a means of training in depth.

Improvements were also made in regard to travel efficiency, safety, and the acceptability of method by the sighted public with the introduction of regular instruction.

VIII. SUMMARY AND CONCLUSIONS

The mobility techniques which have been developed as adult-validated techniques of independent travel proved highly adaptable to children's use. No major revisions were required and only one minor revision of the use of the diagonal technique was found to be useful.

Orientation techniques for children need much more consideration in terms of evaluating the student's present orientation knowledge, presenting new facts and terminology and developing correct concepts for immediate or future use.

Sequential lesson planning was necessary to gradually expand orientation knowledge as the student progressed in his independent travels. Specific lessons with the use of tactual aids (See Addendum P.137) and a Braille street guide were incorporated into the teaching structure at the appropriate time to develop correct orientation concepts. These abstract learnings were then converted into practical usage within the regular instruction program.

Frequency of instruction is dependent upon maintaining consistent progress for the student. All but the poorest achieving stu-

dents maintained adequate to excellent progress on a frequency level of approximately three lessons per week of 30 to 40 minutes duration.

The duration of time needed to advance a student to become capable of independent travel within a typical residential setting, and meet his most pressing travel needs, was approximately 11 to 12 months of instruction at a frequency rate of three lessons per week. There was a correlation between orientation and mobility success and duration of instruction. The most successful students needed the least amount of time to advance within the unit structure, and the poorest students needed the longest time.

Student advancement into Units III and IV could be accomplished with less frequent lessons per week, provided they were of longer duration. The over-all duration of advance instruction was dependent upon the student's travel needs. The expansion of travel should correspond to the student's age, proven ability, and maturity in handling independent travel of greater complexity. The over-all schedule for "completion" will vary for each student, as each will have a different travel environment.

When establishing an over-all time schedule for the "completion" of any student, the factors of (1) assessing the child's

ability to cope with changing climates and seasonal conditions of travel, (2) establishing a positive effect upon parental attitudes toward the child's independent travel, (3) evaluating the child's emotional stability under duress, and (4) the allowance for a gradual growth of independent travel ability equated with the child's age, maturity and corresponding needs, are of great importance.

The grade level most conducive to the introduction of orientation and mobility training was the sixth grade. This is not meant to infer that this grade or corresponding age level is best for every situation, but this level best served this particular project within an itinerant program of blind education. Various conditions such as setting, efficiency in scheduling and expenditure of travel time, availability of cooperative and trained personnel, and positive factors consistent with this particular age group, proved to be very favorable to orientation and mobility instruction.

According to the psychological study accomplished within this project, the most apparent factors seem to indicate that intelligence, degree of vision and recency of visual loss are all related to ultimate success in orientation and mobility training. To a lesser degree, other factors are also indicated. They are:

- 1) Degree of confidence,
- 2) Freedom and experience in inter-personal exchanges,
- 3) Direct parental response to notions of independence,
- 4) The child's ability to talk about blindness, and
- 5) The child's ability to take on chores.

The orientation and mobility instructor noted two additional factors related to orientation and mobility success which were not discussed within the psychological report. They were the presence of a hearing loss and individual motivation related to the gaining of specific travel goals.

Academically, grade averages did not significantly rise or fall as a result of the training, but great care was taken by the instructor not to interfere unduly with the participating student's regular academic schedule. The instructor arranged a schedule in cooperation with the resource teacher and other academic personnel and whenever possible, arranged a schedule for slow or poor students after school hours or at a time when it would not affect their academic schedule.

It can be said that the independent travel skills and the enlargement of the sphere of travel made some social activities more accessible to the participants. Since some lessons involved actual travel to social facilities, it can also be said that orientation and mobility instruction was the means by which additional activities were

gained. Where the school served as a source of social activities on an after school basis, the travel independence which was achieved by many students afforded them the choice of participating in these activities without having to rely upon others for travel needs.

Better control of the environment was emphasized by the application of techniques that were safe, efficient and more in alignment with an improved public appearance. These techniques replaced those which were or could have been used prior to training and which had been extremely limiting to the participants.

The expansion of the travel environment is evident. The majority of students completed Units I and II within a 12-month period and could successfully navigate the environment of the home, the school and the residential area surrounding them. Without formal orientation and mobility instructions, it is extremely doubtful that any of these same individuals would have achieved the amount of demonstrated success.

IX. RECOMMENDATIONS

A. ENLISTING AND MAINTAINING COOPERATION

The program of orientation and mobility for blind children relied heavily upon the cooperation of a great number of people who could exert influence in a variety of ways. These people

included parents, teachers and professional people who had or could have contact with the students receiving training.

The following activities were used as a means of enlisting and maintaining cooperation between people and are heartily recommended as inclusions for any program of orientation and mobility for children.

1. Parent-Teacher Cooperation

- a. Group parent meetings were arranged for the parents of the blind children to better inform them of the nature of the training and how they might assist in forming positive attitudes.
- b. Workshops were arranged for both parents and teachers. Orientors were solicited from the Veterans Hospital in order to instruct each group in some primary way to increase independent travel skills. A one-day workshop was held during the first year of the project for the parents. The movie "The Long Cane" was shown, followed by practical instructions in the use of a sighted guide, familiarization techniques, spatial orientation, and hand and forearm protection. Parents had the opportunity to wear a blindfold and took the roles of both teacher and student under supervision.

- c. A general informative meeting and workshop for teachers was also held so that positive attitudes could be fostered in the school situation. Additional cooperation would thus be gained through better understanding and teachers would become familiar with the actual training technique; both initiating and reinforcing correct procedures. A full week was used for the workshop and both resource and itinerant teachers were present.
- d. Individual meetings with parents were arranged prior to the blind child's acceptance on the program. The objectives were explained and opportunities for questions were presented. The program was handled on a voluntary basis and parents had the opportunity to accept or reject the training. However, no parent refused training during the project period.

2. Student Cooperation

- a. Students were encouraged to discuss their feelings with the orientation and mobility instructor about their training so that a more positive approach could be developed

regarding independent travel and their apprehensions.

- b. In addition to all the above, the new trainees were present for psychological testing and interviews as a prerequisite to training. Insight into the student's emotional or training difficulties was gained. Problems were discussed and often alleviated through changes in instructional methods.
- c. A one-day workshop was held for all trainees. It included acting out practical situations involving social interaction, free discussion related primarily to independence and travel, and a mobility activity for gaining group and individual evaluations.

B. EARLY INTRODUCTION TO TRAINING

The greatest value of this demonstration appears to be in proving that blind children can gain independent travel skills within an existing educational framework at the grade school level.

If instruction is not given at the lower level but delayed until the child's education is complete, the accumulation of years of dependence, neglect, ignorance, and possible indifference may become insurmountable.

If, on the other hand, orientation and mobility training is introduced at the grade school level, the child is able to grow in travel skills and knowledge at the time when his interest and capabilities permit him to succeed. Not only does the child succeed when under supervision, but with his learned skills he can greatly expand his independent sphere of travel. With his increased ability and experience the chances for him to become a more self-reliant person in both his personal and vocational pursuits are considerably increased.

For these reasons, it is highly recommended that any school system for the blind, either providing or considering orientation and mobility training, introduce instruction at a time where travel needs and interests are apparent, when the utilization of independent travel skills will be consistent, and when the child demonstrates sufficient maturity for intelligent and capable travel.

ADDENDUM

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QUESTIONNAIRE FOR ORIENTATION AND MOBILITY PROGRAM

Date of Application _____

I. PERSONAL HISTORY

NAME _____ BIRTH DATE _____

ADDRESS _____

TELEPHONE _____

GRADE _____ PARISH CHURCH _____

RELATIONSHIP NATURAL _____ FOSTER _____ ADOPTED _____ CHILD _____

SIZE OF FAMILY _____

II. MEDICAL HISTORY

HEIGHT _____ WEIGHT _____

PRESENT HEALTH: EXCELLENT _____ GOOD _____ FAIR _____ POOR _____

RECENT ILLNESS _____ CHRONIC CONDITIONS _____

MEDICATION _____

III. ADJUSTMENT

FAMILY:

SCHOLASTIC ADJUSTMENT:

SOCIAL ADJUSTMENT:

ACCEPTANCE OF HANDICAP:

IV. ATTITUDES EXPRESSED ABOUT

SCHOOL:

FRIENDS (Sighted and Blind)

MOBILITY:

V. RESPONSIBILITIES

PARENTAL INITIATION OF VARIOUS DUTIES:

- 1.
- 2.
- 3.
- 4.

CHILD'S INDEPENDENT RECOGNITION OF DUTY:

- 1.
- 2.
- 3.
- 4.

VI. MOBILITY

EXTENSION OF INDEPENDENT TRAVEL:

HOME:

SCHOOL:

OTHER:

VII. ORIENTATION KNOWLEDGE

CONCEPTS:

1. Rooms
2. Buildings
3. Outdoors

SPECIFIC KNOWLEDGE

1. Directions
2. Distance
3. Shapes

VIII. SENSORY INFORMATION

SIGHT:

HEARING:

SMELL:

TOUCH:

IX. EXPERIENCES

1. Daily

2. Weekly (Weekend)

3. Summer

4. Special Events

X. VISUAL IMPLICATIONS

Etiology _____

Visual Acuity R _____ L _____ Date _____

Visual Acuity for Travel Purposes _____

Name _____ School _____ Grade _____

Teacher or Advisor		Itinerant Teacher	Term of Instruction		
			1st	2nd	3d mo
A. <u>Orientation Skills</u>		End of:			
1.	Has a fairly accurate mental image of his indoor surroundings.	1.			
2.	Utilizes sense of touch, smell and hearing for determining his whereabouts whenever necessary.	2.			
3.	Maintains a straight line of travel without veering or losing direction.	3.			
4.	Utilizes "direction takers" effectively and inconspicuously to gain a line of travel to other objects or areas.	4.			
5.	Recognizes and makes use of various physical landmarks and other sensory clues for determining his whereabouts.	5.			
6.	Can estimate distances while walking.	6.			
7.	Has knowledge of directions, (North, South, East, West) - (left, right, in front, behind), and can utilize them for planning short trips to various indoor objectives.	7.			
8.	Follows verbal directions and descriptions in order to locate various indoor objectives.	8.			
9.	Retains instructions and previous familiarizational material so as to remain oriented throughout his lessons.	9.			
10.	Expresses need for orientation materials simply and adequately to sighted persons whenever necessary.	10.			
11.	Has knowledge of and properly utilizes orientation terminology	11.			
B. <u>Mobility Skills</u>					
1.	Understands the purpose of and utilizes the correct method in the use of a sighted guide.	1.			
2.	Understands the purpose of and utilizes hand and arm protection whenever necessary.	2.			
3.	Uses the free hand in an inconspicuous manner to identify landmarks or other physical clues.	3.			
4.	Understands the purpose of and utilizes the cane across the body effectively and safely.	4.			
5.	Understands the principles involved in the use of "Touching Technique" method of cane travel and utilizes it for safe and independent travel for indoor lessons.	5.			
6.	Adequately locates stairs while traveling at a normal gait utilizing the "Touching Technique" and maintains protection while going up or down.	6.			
7.	Makes use of the proper techniques under changing conditions with the use of good judgment & reason.	7.			
8.	Has knowledge of and utilizes correct mobility terminology.	8.			
9.	Maintains safe and courteous conduct while traveling.	9.			

Code: 1. Mastered sufficiently 2. Making Progress. 3. Little or no Progress

UNIT II - BEGINNING OUTDOOR TRAINING (Residential Area)

Name _____ School _____ Grade _____

Teacher or Advisor _____

Itinerant Teacher _____

Term of Instruction _____

A. Orientation Skills

End of:

1st 2nd 3d mo.

1. Has a fairly accurate mental image of his outdoor surroundings.
2. Retains previously learned knowledge of directions and applies it to outdoor conditions.
3. Makes use of verbal instructions, descriptions and directions to locate familiar but more distant objectives.
4. Recognizes and makes use of various outdoor physical landmarks and other sensory clues for determining his whereabouts.
5. Has an awareness of traffic sounds and patterns and is able to convert them for orientation and mobility purposes.
6. Adequately and independently plans lessons of longer duration and greater distance using all available orientation material to locate familiar objectives.
7. Verbalizes and reviews lessons at the beginning of each instruction and clarifies doubtful situations before starting.
8. Remains oriented throughout an entire lesson after an initial description of the route and without any further assistance from the instructor so that he independently locates the objective.
9. Has demonstrated the ability to use the sighted public to gain useful information whenever necessary.
10. Changes directions knowingly and utilizes correct orientation and mobility procedures to do so.

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B. Mobility Skills

1. Modifies the indoor "Touching" cane technique to outdoor conditions.
2. Effectively follows shoreline for use as a guide and as a means of locating sidewalks.
3. Adequately anticipates and locates curbs while traveling at a normal gait.
4. Makes street crossings safely and effectively using proper mobility techniques.
5. Utilizes systematic mobility techniques to change directions.
6. Increases the sensitivity of touch using the cane technique to identify changes in terrain and other physical landmarks.
7. Continues to make use of the previously learned mobility techniques under changing conditions with good judgment and reason.
8. Has knowledge of and uses correct mobility terminology.
9. Has demonstrated the ability to function independently in the residential area bounded by _____ and _____.
10. Maintains safe and courteous conduct while traveling.

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Code: 1. Mastered sufficiently 2. Making Progress 3. Little or no Progress

UNIT III - ADVANCED OUTDOOR TRAVEL (Business Area)

Name	School	Grade
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Teacher or Advisor

Itinerant Teacher

Term of Instruction

A. Orientation Skills

End of:

1st 2nd 3d mo.

1. Has a fairly accurate mental image of the business area surroundings. 1.
2. Continues to retain and utilize previously learned orientation material in order to independently plan and execute lessons in this area. 2.
3. Recognizes and utilizes familiar outdoor landmarks and other sensory clues of smell and hearing for determining his whereabouts. 3.
4. Utilizes traffic sounds as an aid in establishing a straight line of travel, a directional guide for street crossings and as a sound clue for street crossings with traffic signals. 4.
5. Has knowledge of the purpose and location of traffic signals in his area and utilizes them safely and effectively for street crossings. 5.
6. Has knowledge of the major routes of transportation in his area and utilizes them safely and effectively to extend his sphere of travel. 6.
7. Independently plans, executes and remains oriented throughout an entire lesson without any further assistance from the instructor. 7.
8. Is capable about expressing himself and making his orientation needs known to sighted persons when soliciting aid or information. 8.
9. Has a general knowledge of traffic laws and regulations, their application to him, and applies this knowledge to his everyday travels. 9.
10. Has knowledge of and can utilize a Braille Street Guide as an aid to extending his sphere of travel. 10.
11. Continues to retain and utilize previously learned orientation material and orientation skills in order to adapt his travel to new situations and changing environment. 11.

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3. Mobility Skills

1. Has demonstrated the ability to adapt previously learned skills to advanced, complex situations. 1.
2. Travels safely, effectively and confidently over all terrain common to business areas. 2.
3. Anticipates and locates curbs easily and makes effective street crossings under all conditions of normal travel. 3.
4. Can safely, courteously and effectively apply the necessary skills involved in the use of public transportation. 4.
5. Travels effectively in crowded conditions utilizing the modified touching technique whenever necessary. 5.
6. Safely and effectively utilizes methods and techniques associated with revolving doors, escalators, elevators, etc., whenever necessary. 6.
7. Presents a confident, safe and effective appearance to the public. 7.

Code: 1. Mastered sufficiently 2. Making Progress 3. Little or no Progress

Instructor

NAME	DATES OF INSTRUCTION	FREQUENCY OF INSTR.	I NUMBER OF LESSONS RECEIVED	II TOTAL
Lynne	10-20-65 to 9-1-66	3 times per week	30	48
Charles	10-19-62 to 4-20-63	4 times per week	19	36
	8-20-64 to 9-1-64	2 times per week	2	-
Michael B.	8-5-65 to 6-30-66	3 times per week	32	34
Richard	1-27-64 to 9-3-64	4 times per week	20	34
	12-12-64 to 1-5-65	2 times per week	4	-
	7-16-65 to 8-3-65	2 times per week	-	12
	8-30-66	1 time per week	3	-
Michael C.	5-29-63 to 6-27-63	5 times per week	8	7
	10-24-63 to 1-23-64	2 times per week	1	-
	6-30-65 to 7-1-65	2 times per week	3	-
John D.	10-15-65 to 5-18-66	3 times per week	17	40
	6-27-66 to 9-1-66	2 times per week	3	5
Anthony	2-4-64 to 5-8-64	2 times per week	17	-
	5-11-64 to 6-3-64	3 times per week	5	3
Kathleen	4-27-65 to 6-17-65	2 times per week	7	5
	6-21-65 to 9-23-65	3 times per week	4	3
William	8-8-62 to 3-16-63	5 times per week	26	38
	10-16-63 to 12-11-63	2 times per week	9	-
	6-20-64 to 7-30-64	2 times per week	2	5
	10-4-65 to 11-18-65	2 times per week	6	10

NAME	DATES OF INSTRUCTION	FREQUENCY OF INSTR.	I NUMBER OF	II LESSONS RECEIVED	III TOTAL
Barbara	4-18-62 to 8-18-62	2 times per week	15	10	15
	8-20-62 to 11-27-62	4 times per week	3	3	37
	6-13-64 to 7-8-64	1 time per week	-	7	-
	12-3-65 to 1-6-66	1 time per week	-	-	3
	9-8-66 to 9-20-66	2 times per week	7	-	-
Theresa	5-29-63 to 9-18-63	5 times per week	8	25	-
	7-2-64 to 7-28-64	3 times per week	-	1	5
	5-11-65 to 6-16-65	2 times per week	3	1	4
Kevin	10-13-65 to 5-16-66	3 times per week	56	13	-
	1-27-64 to 7-13-64	3 times per week	50	4	-
Daniel	9-24-64 to 8-14-65	3 times per week	20	56	-
	11-15-64 to 8-21-65	3 times per week	16	21	32
	12-11-64 to 12-18-64	1 time per week	-	1	1
John J.	12-3-65 to 12-27-65	2 times per week	-	-	5
	5-2-64 to 8-21-64	3 times per week	10	10	14
	9-25-64	1 time per week	-	1	-
Linda	10-8-64	1 time per week	-	1	-
	11-5-65	1 time per week	1	-	-
	12-22-65 to 5-26-66	2 times per week	18	7	-
Lawrence	6-27-66 to 9-1-66	4 times per week	5	15	3
	10-6-66 to 5-23-67	3 times per week	43	22	-
	6-27-66 to 9-1-66	4 times per week	6	15	3
Rosemary	6-27-66 to 9-1-66	4 times per week	6	15	3
	6-27-66 to 9-1-66	4 times per week	6	15	3
	6-27-66 to 9-1-66	4 times per week	6	15	3

NAME	DATES OF INSTRUCTION	FREQUENCY OF INSTR.	NUMBER OF LESSONS RECEIVED			TOTAL
			I	II	III	
James	11-4-64 to 6-4-65	3 times per week	20	34	5	59
	6-15-65 to 8-17-65	2 times per week	4	9	1	14
John Mc.	11-11-65 to 5-24-66	2 times per week	17	26	-	43
Joseph M.	11-18-64 to 6-4-65	3 times per week	32	22	-	54
	6-15-65 to 12-3-65	2 times per week	4	20	19	43
Annette	12-22-65 to 5-24-66	2 times per week	14	18	-	32
	6-27-66 to 9-1-66	3 times per week	5	10	2	17
Dale	1-28-65 to 6-7-65	3 times per week	21	15	-	36
	6-15-65 to 8-24-65	2 times per week	1	13	-	14
	9-29-65 to 5-20-66	2 times per week	3	44	3	50
Michael P.	4-11-63 to 9-13-63	5 times per week	23	22	13	58
	9-16-63 to 4-25-64	3 times per week	4	8	31	43
Sharon	10-23-62 to 5-28-63	5 times per week	23	17	58	98
	6-6-64 to 8-21-64	3 times per week	9	7	7	23
Michael P.	1-4-65 to 6-4-65	3 times per week	19	25	-	44
	6-17-65 to 8-12-65	1 time per week	-	4	-	4
	9-27-65 to 11-9-65	2 times per week	3	4	1	8
	5-5-66 to 6-2-66	2 times per week	1	4	2	7
David	10-22-62 to 12-29-63	5 times per week	17	22	65	104
	6-18-64 to 7-23-64	2 times per week	7	2	3	12
	11-19-65 to 1-3-66	2 times per week	-	-	10	10

121

NAME	DATES OF INSTRUCTION	FREQUENCY OF INSTR.	NUMBER OF LESSONS RECEIVED				TOTAL
John R.	3-23-63 to 6-28-63	5 times per week	21	26	13	60	
	9-3-63	1 time per week	1	-	-	1	
	6-15-65 to 8-17-65	1 time per week	2	2	4	8	
Christine	1-29-64 to 6-3-64	3 times per week	37	-	-	37	
	9-29-64 to 6-28-65	3 times per week	8	54	-	62	
	10-18-65 to 11-22-65	1 time per week	1	3	1	5	
	11-29-65 to 5-20-66	2 times per week	1	34	-	35	
	8-2-66 to 9-1-66	3 times per week	8	-	-	8	
	5-1-63 to 6-8-63	3 times per week	16	-	-	16	
Kathryn	6-10-63 to 9-3-63	5 times per week	2	10	28	40	
	9-13-63 to 12-13-63	3 times per week	9	12	8	29	
	9-24-64 to 6-14-65	2 times per week	7	6	42	55	
	4-11-63 to 9-4-63	5 times per week	26	32	-	58	
	9-16-63 to 2-5-64	3 times per week	3	35	6	44	
	6-20-64 to 6-27-64	4 times per week	-	4	-	4	
Joseph S.	9-29-64 to 9-24-65	2 times per week	12	19	54	85	
	7-26-66 to 9-1-66	2 times per week	5	-	-	5	
	1-27-64 to 6-26-64	4 times per week	25	27	2	54	
	8-25-64 to 6-3-65	2 times per week	5	16	33	54	
	9-25-65 to 12-29-65	2 times per week	-	-	46	46	
	10-4-65 to 5-23-66	3 times per week	60	17	-	77	
Jacqueline	1-27-64 to 6-26-64	4 times per week	25	27	2	54	
	8-25-64 to 6-3-65	2 times per week	5	16	33	54	
	9-25-65 to 12-29-65	2 times per week	-	-	46	46	
	10-4-65 to 5-23-66	3 times per week	60	17	-	77	
	1-27-64 to 6-26-64	4 times per week	25	27	2	54	
	8-25-64 to 6-3-65	2 times per week	5	16	33	54	
Celia	9-25-65 to 12-29-65	2 times per week	-	-	46	46	
	10-4-65 to 5-23-66	3 times per week	60	17	-	77	
	1-27-64 to 6-26-64	4 times per week	25	27	2	54	
	8-25-64 to 6-3-65	2 times per week	5	16	33	54	
	9-25-65 to 12-29-65	2 times per week	-	-	46	46	
	10-4-65 to 5-23-66	3 times per week	60	17	-	77	

Percentages of Children Completing 13 Items of Travel

Extension of Travel - Prior to Orientation and Mobility Instruction

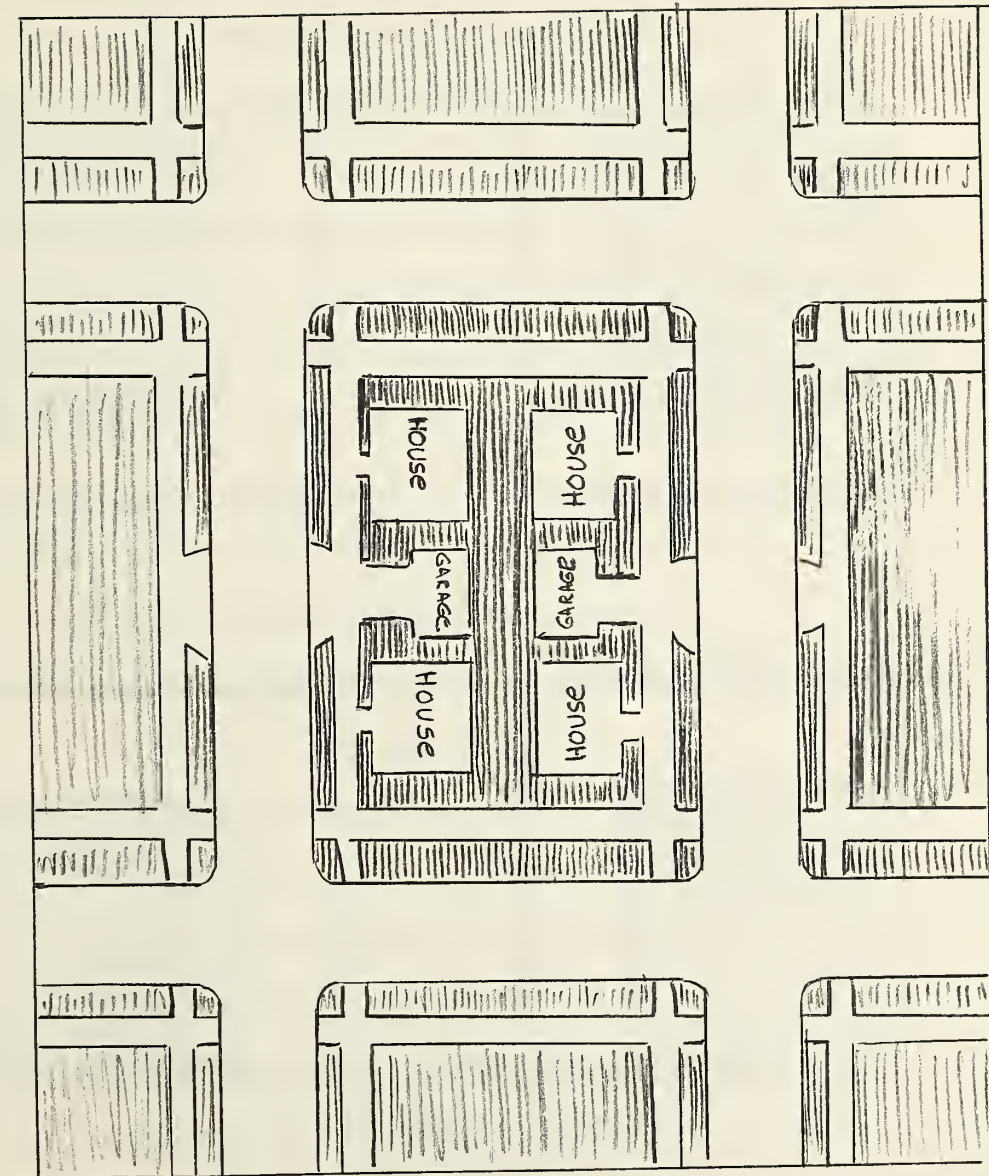
Item	No. of Students Completing Item	Approx. %
1	31 out of 32	97
2	29 out of 32	91
3	29 out of 32	91
4	21 out of 32	66
5	24 out of 32	75
6	6 out of 32	19
7	6 out of 32	19
8	5 out of 32	16
9	2 out of 32	6
10	0 out of 32	0
11	1 out of 32	3
12	1 out of 32	3
13	0 out of 32	0

Extension of Travel After Orientation and Mobility Instruction

1	32 out of 32	100
2	32 out of 32	100
3	32 out of 32	100
4	31 out of 31*	100
5	31 out of 31*	100
6	28 out of 29*	96
7	28 out of 29*	96
8	27 out of 29*	93
9	21 out of 29*	72
10	9 out of 29*	31
11	15 out of 29*	52
12	16 out of 29*	55
13	2 out of 29*	7

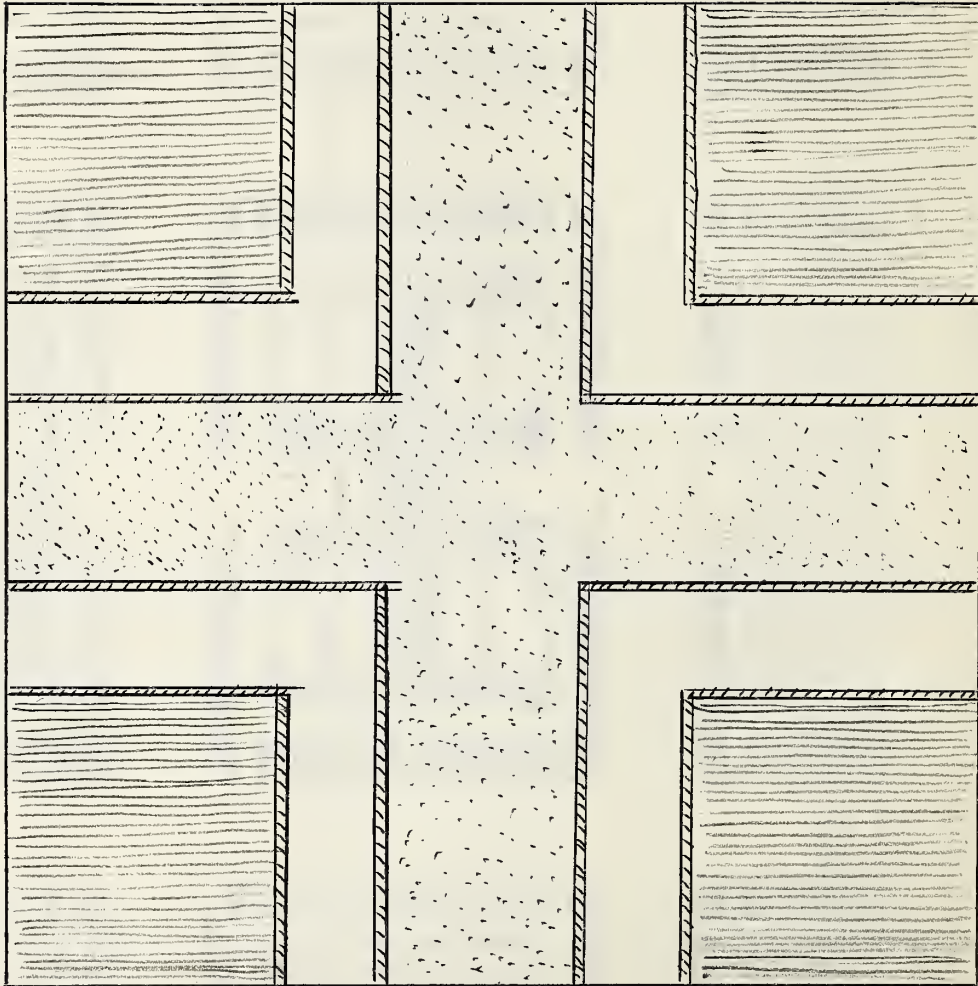
*-Three students transferred to other school systems before they could extend their travels beyond items 3, 4, and 5.

Figure 1



A City Block

Figure 2



Tactual Aids

1. A City Block (Figure 1)

This is a tactual aid representing a complete city block and portions of neighboring blocks. It is constructed of cardboard, sandpaper and felt and measures 15 x 18 inches. Sidewalks, and grass are represented by differing tactual materials. The houses and garages are made of one layer of cardboard, as are the entire levels of the blocks, which are raised one layer above the street level. Driveways are represented by angled cuts into the cardboard from sidewalk to street level.

Various lesson plans have been devised to:

- a. encourage the development of a concept dealing with a single city block,
- b. have the student participate in rudimentary tactual recognition of the various objects found on the board,
- c. have the student participate in tracing simple travel routes from one objective to another on the center block and,
- d. initiate travel routes using a straight line of travel with one street crossing and travel plans involving one or more street crossings and more than one direction of travel.

2. A Street Intersection (Figure 2)

Figure 2 represents a tactual aid of two intersecting streets, corresponding sidewalks and four corners. A masonite board was used in construction, measuring approximately 20" x 20". The surface of the streets is of a sandpaper texture, the sidewalks are smooth and the four corners are made of a velour paper which is glued to the board. Wooden strips line both sides of the sidewalks and serve as definite boundaries between areas.

This board was used to teach concepts and travel planning to the participating students prior to, or in conjunction with, the practical application of their independent travels.

Some examples are as follows:

- a. To represent a typical street intersection with corresponding North, South and East and West streets. Student participation involved:
 - 1) orienting the board according to the cardinal directions,
 - 2) identifying the directions of the two streets,
 - 3) tracing a pattern of travel along the sidewalks and identifying the directional side of the street and,

- 4) identifying the directional names for each of the four corners.
- b. To represent a four block area. Student participation involved:
- 1) Identifying the two streets as two known streets used in conjunction with the child's independent travel instruction.
 - 2) Establishing the position of certain known buildings or places which had also been used in conjunction with previous travels (Blocks were used to designate buildings.).
 - 3) Planning lessons from one known objective to another with their corresponding locations and street names. When planning a lesson of this type, the student first used the original dimensions of the board and as he traced a pattern of travel which would take him off the edge of the board, he would return each time to the middle and re-name each new street that he would cross as he recrossed the original intersection.

c. When public transportation was introduced, the board served as a typical busy intersection. Small model cars (or buses) were used to demonstrate the rules of the road. Student participation included:

- 1) identifying and tracing a pattern which cars and buses would use as they traveled in the four cardinal directions,
- 2) establishing the various corners that would be used in making transfers from one bus to another and,
- 3) identifying the various patterns that cars make as they stop, enter or turn at the intersection so that the students would become more knowledgeable about the sounds of traffic within the intersection and be able to localize these sounds for street crossing purposes. (Primarily at intersections which were controlled by a traffic signal.)

d. The intersection was also used to represent the base lines of Chicago, (State and Madison Streets) which determine the addressing system for the city. Student participation involved:

- 1) the plotting of addresses from these baselines and at any given point from the baselines. A Braille street guide of Chicago was used with this particular technique.

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INDEPENDENT TRAVEL TRAINING FOR BLIND CHILDREN; A FINAL REPORT.

Date Due (1967)

Reference Copy

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NEW YORK, N. Y. 10011

